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TEXAS STATE JOURNAL OF MEDICINE

Volume 46 Number 8 Austin, Texas, August, 1950

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President's Page

EXAMINATION OF MILITARY INDUCTEES

War has again struck and it is creating lots of anxiety and confusion in the lives of many Americans.

The medical profession is laboring under the same anxiety, distress, and confusion because for many doctors the future is quite uncertain at the moment. If the present war situation continues to grow, more and more men will be inducted into the military service. Eventually, this means more and more doctors will be called into the service, one way or another, to perform one of the many services which only doctors can perform in war.

Doctors, and also the Army, recognize that war involves medical services for the people at home. Therefore, doctors are forced again, after a respite of only a few years, to give serious consideration to the fact that they may be called upon in the very near future, in some way, to provide adequate medical service for men and women attached to various military services and at the same time provide for medical services to the people as a whole by those doctors not utilized by the military services.

The State Medical Association has already been approached by members of the Medical Department of the Fourth Army with the view of searching for the best solution to these problems.

When Col. David E. Liston and Col. Hardy A. Kemp brought these matters before me, I immediately contacted the State Council on National Emergency Medical Service and arranged a meeting for the purpose of considering the above matters with the Fourth Army personnel. It was decided at this meeting that cooperative plans for examination of inductees by civilian physicians should be established immediately at induction centers in Dallas, Houston, San Antonio, El Paso, and Amarillo.

That these centers might become operative as quickly as possible, another meeting was called for the purpose of letting the Fourth Army personnel present the program to the president and chairman of the

military affairs committee of each of the county medical societies covering the above named cities. This meeting was held in Dallas on July 20.

Full instructions were given by Colonel Liston, including a schedule of fees to be paid by the Fourth Army to doctors while serving under civilian status. Colonel Liston explained that military medical personnel was so short it could not possibly carry out the examinations on inductees.

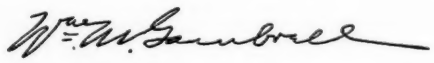
Commenting further, Colonel Liston pointed out that a portion of the National Guard might be activated soon. He explained that it appears doctors will have to cooperate with a skeleton military personnel in the examination of members of the National Guard; otherwise activation of the National Guard alone would require the immediate increase of doctors being inducted into military service to take care of this examination load. This service would be rendered also on the civilian fee-for-service schedule.

The Council on National Emergency Medical Service and all others present heartily agreed that it was wise for doctors to serve the military organizations as mentioned above in order to delay as long as possible the induction of doctors into the Army, Navy, or Air Force. One hundred per cent cooperation was pledged by doctors from the five induction centers.

Letters have been mailed to the presidents of all county medical societies asking that they set up teams to cooperate with the Fourth Army in these tasks.

Some requests may be made upon you by the Selective Service System, and you are requested to cooperate with your county medical society in meeting the Selective Service requests as far as possible.

In conclusion Colonel Liston stated that he was not concerned at the moment with the doctors who are in the reserve, but that he would be mighty happy to see lots of volunteers coming in.



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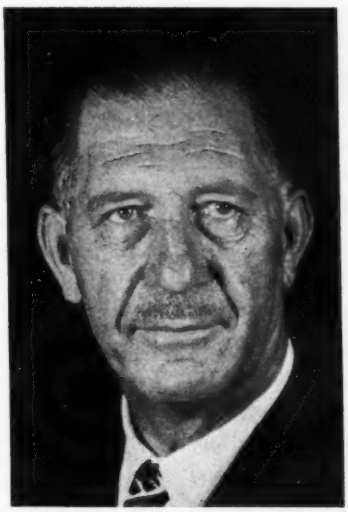
Volume 46 **Austin, Texas, August, 1950** **Number 8**

NEW STATE SECRETARY NAMED

Dr. T. C. Terrell, Chairman of the Board of Trustees of the State Medical Association of Texas, has announced the appointment of Grahame M. (Tod) Bates, as Executive Secretary of the organization and Editor of the JOURNAL. Mr. Bates assumed his duties August 1.



TOD BATES

The new Executive Secretary comes to Texas from Chicago, where he has been connected with the American Medical Association's National Education Campaign against compulsory health insurance and socialized medicine.

Mr. Bates was born in Childress, Texas, and attended school and college in Abilene, Fort Worth, and Austin. His background includes editorial work on various West Coast newspapers and for International News Service. He has served as general manager or executive secretary of several trade associations, including the Southern California Motor Car Dealers Association, the San Francisco Motor Car Dealers Association, and the Northern California Motor Car Dealers Association.

A graduate of Kelly Field and former regular army fighter pilot, he volunteered for active duty shortly after Pearl Harbor and organized and directed the Public and Industrial Relations Sections of the Air Force Western Procurement District, covering the Pacific Coast states. He served later as commanding officer of Marana Army Air Base at Tucson, Ariz., and also commanded Luke Field, a single engine advanced fighter school at Phoenix. He reverted to inactive reserve status shortly after the Japanese

surrender, in the grade of colonel.

Since the war he has been engaged in various phases of public relations work, was an executive of the Aircraft Industries Association and directed the public relations of the National Highway Safety Conference and the National Industrial Safety Conference, from Washington, D. C.

Mr. Bates is married and has two stepsons, aged 23 and 21. The oldest recently finished college and is employed on the Pitchfork Ranch in King County, and the younger boy is finishing school at the University of San Francisco. The Bateses have established their home in Austin.

The Trustees and the central office staff welcome Mr. Bates as their co-worker in the affairs of the State Medical Association and bespeak for him the cooperation of members throughout Texas.

THE RESPONSIBILITY IS YOURS

A challenge to defend a system of free enterprise in which the best medical care can be attained was offered to the House of Delegates of the American Medical Association by the retiring President, Dr. Ernest E. Irons of Chicago. The message which he brought to representative physicians from all parts of the country as they prepared to transact the business of the Association in San Francisco last June is equally meaningful for the doctor back home—for you.

Dr. Irons mentioned the remarkable progress which medical science, largely unhampered by government, has made in the past fifty years. Medical care cannot be improved by setting up a uniform assembly line system, he declared, regardless of what those who favor compulsory health insurance may claim. The threat to good medical care and its relationship to the whole economic and social structure is better understood now than it was a year or two ago, and thousands of nonmedical citizens, as well as physicians, "at first impressed by the false premises of arguments for compulsory sickness insurance now realize its inevitable destructive effects on quality of medical care, on the independence of the American citizen and on the economic stability of the nation."

Recognition of the social and humanitarian necessity of providing for the health care of the indigent and of those beset by ill fortune is universal. However, Dr. Irons pointed to the 16,000 persons who are daily being added to the rolls of voluntary health insurance plans and to the successful city and state aid programs with which physicians long have cooperated as evidence that nationalization of medical care is not an essential solution.

The greatest necessity now is to convince the American people, who have been conditioned throughout the past fifteen years to the gradual growth of welfare projects, that "fringe bills" offering federal subsidy in perhaps a small phase of life may open the door to mushrooming interference by governmental bureaucracy. Worthy objectives have been used habitually to camouflage national proposals essentially dangerous to our well-being, but these objectives can be achieved more safely and effectively by local and state efforts if the people are thoroughly educated, Dr. Irons insisted.

What part should the physician play? Dr. Irons told his audience:

"Medicine will flourish and progress only in a sound economy. Our efforts, therefore, must concern not only the interests of good medicine but also the maintenance of free enterprise and solvent finance in American life. We must labor to maintain the personal freedom and initiative of our citizens. Our funds then will be available to help the needy and improve the conditions of other citizens by local measures; citizens will not lose their initiative and sense of personal responsibility to the state. In this national emergency . . . we must not be guilty of cowardice or unwillingness to stand up and be counted. . . .

"This is not a partisan fight; it is a crusade in which every right thinking doctor who values freedom of opportunity, free enterprise and the maintenance of high standards of medical practice must join."

As citizens concerned with the broad issues which now face this nation, physicians are responsible for informing themselves and for taking part in its government. They should offer their counsel especially when health and medicine are implicated, but wherever clear-thinking, forceful leadership is needed, America's doctors must take their stand.

A.M.A. DUES TO INCLUDE JOURNAL

Action was taken at the recent annual session of the American Medical Association to set membership dues for 1951 at $25, the same level which has been in effect this year. The 1951 dues, however, will cover a subscription to *The Journal of the American Medical Association,* in itself a rewarding feature of membership in the A.M.A. *Journal* subscriptions for nonmembers will cost $15.

Fellowship in the Scientific Assembly will be retained, but dues for 1951 will be reduced to $2. In addition to the other privileges of fellowship, physicians in this classification may elect to receive a subscription to one of the specialty publications of the American Medical Association in lieu of *The Journal.*

Perhaps it is premature to begin thinking of 1951 before all Texas physicians have paid their dues for 1950 membership in the American Medical Association, but those who have delayed payment this year for one reason or another may like to know that A.M.A. dues appear to be here to stay—at least until costs of operation go down, an unlikely possibility in the years immediately ahead — but that the House of Delegates and Board of Trustees are attempting to provide even greater services with the membership card than have been available previously. The maintenance of high standards in therapeutic preparations and equipment, in hospital practices, and in medical education; the collection and compilation of scientific and biographic information in its package and motion picture libraries; the publication of informative periodicals and pamphlets; the support of appropriate legislation pertaining to health and medicine; and the innumerable other services which have become synonymous with this great organization of American physicians of course will continue.

No member of the State Medical Association should allow his membership in the American Medical Association to lapse because of failure to pay the dues which are necessary for its support.

COUNTY SOCIETY CHARTERS AND CONSTITUTIONS

During the past few years various problems arising within county medical societies unveiled the fact that many had not complied with section 2, chapter X of the By-Laws of the State Medical Association of Texas, which provides for the adoption of county society constitutions, and that those societies possessing such rules and regulations had not kept them revised and amended in accordance with actions by the House of Delegates. A thorough search of files in the central office revealed that charter duplicates and much important county society organizational data were lacking.

All of this was seriously studied by the Board of Councilors, the President, and the Secretary of the Association, who concluded that each society should prepare a constitution and by-laws to be approved from a legal viewpoint by the general attorney of the Association, Mr. Philip R. Overton, and then passed upon by the Board of Councilors.

A sample constitution and by-laws, modeled after that of the State Medical Association by Mr. Overton and Dr. Harold M. Williams, former Secretary, was prepared at the direction of the Board of Councilors and mailed early in 1949 to each county society secretary as a guide. After modification to conform with local rules and regulations, the document was channeled through the society's district Councilor to the central office for recording, to Mr. Overton for

a written opinion, and then to the Board of Councilors. The Councilors in regular meeting approved or disapproved the constitution and by-laws submitted to them. Upon their approval of a constitution and by-laws, a new charter was issued to each society in which the original had been lost or destroyed.

This project has been vigorously stressed at every opportunity by the Board of Councilors. As of this date 79 constitutions and by-laws have been approved; models have been requested by 16 societies which have not submitted their finished instruments to the Board; the constitutions and by-laws of 14 societies are pending final action, which means that they are either in the hands of the general attorney or in the central office awaiting the next meeting of the Board or that they have been returned to the respective society for correction; and 10 societies have not taken any action. The majority of the latter are in the eastern section of the state.

Seventy-one societies have been issued the new, smaller charters that were adopted by the Association in preference to the large, old-style ones, all of which have been recorded in the central office, and eight other societies have sent in their existing charters for permanent recording. Each charter recorded is designated by a number for easier reference in both the central office and the local society; whenever a society is regrouped, the number will be determined by the counties prefixing the society name. For example, the Eastland-Callahan Society (137) is merging with the Stephens-Shackelford-Throckmorton Society (205); therefore, the number for the Eastland-Callahan organization (137) will be assigned to the new combination while 205 will remain vacant.

On April 29, 1903, the first constitution and by-laws of the State Medical Association of Texas as currently organized was adopted. During that same year the President and Secretary were authorized to issue charters to county medical societies upon approval of an executive committee of the Board of Councilors. The original applications for charters, now yellowed and crisp with age, were submitted in 1903, 1904, and 1905 by the local societies to the House of Delegates with the approving signatures of the Councilors for the respective districts. However, in a number of cases, there is insufficient evidence in the files to show that a charter was actually issued.

So far as is known, the oldest charter now in existence is No. 169, issued April 24, 1904, to the Kerr-Kendall-Gillespie-Bandera Counties Medical Society. It was officially signed by the late Dr. Frank Paschal of San Antonio, who served as the third President under the charter issued January 1, 1901, changing the name "Texas State Medical Association" to "State Medical Association of Texas." Dr. John T. Moore of Houston was Secretary at that time.

As the files are now set up, a fairly comprehensive picture is given of present societies whose combinations were established after several "marriage and divorce" trials to reach a grouping satisfactory to all physicians in that particular area. Some societies were formed with one county or more and later merged with others only to conclude that the original combinations were better. All of this required approval of the Councilors concerned as well as of the entire Board, the surrendering of the old charters by each society, the issuance of a new charter covering the reorganized group, and the revision of the respective constitutions and by-laws. Other societies reached their present status by enlisting additional counties one by one.

A chart listing each county medical society in Texas as now constituted and incorporating much of the historical data which have been assembled in connection with the charter and constitution project is published in the Organization Section of this JOURNAL (pages 658 and 659). The chart indicates the date on which the original charter was issued for each society for which such information is available, the issuance date and number of the new charter, the status

of the constitution and by-laws, and the names of the president and secretary who were serving at the time the constitution and by-laws was approved.

It would be of inestimable historical value if the data that have been compiled in the central office could be duplicated and perhaps enlarged upon for the records of the individual societies.

In addition to serving as a historical record, the chart being published at this time may help to encourage those societies which are in the process of adopting new constitutions and obtaining new charters to complete the steps necessary to reach those goals. The Board of Councilors and the central office staff are looking forward with keen anticipation to the completion of this task before the end of 1950. With continuation of the splendid cooperation of the societies that has prevailed thus far, it can be done.

CURRENT EDITORIAL COMMENT

DIAGNOSTIC BLOOD TESTS FOR CANCER

In the treatment of most human diseases, early and accurate detection is of great importance. Recognition of changes occurring in the blood of patients with most infectious diseases has been of value in their successful control and treatment and has stimulated research to find diagnostic blood tests for cancer.

It is regrettable that some preliminary results of these studies have been given publicity in the lay press when the tests are still in a developmental stage. Because of this publicity, material for performing one of the tests has been made available in the form of kits from commercial sources. An evaluation study of this particular test performed on 148 patients at the M. D. Anderson Hospital for Cancer Research showed 45 per cent false positive reactions and 38.6 per cent false negative reactions. The test was negative in several cases with proved metastases. *Consumer's Research* in its June issue appraised this much talked of subject of "cancer blood tests" and the test mentioned above in particular. Conclusions reached were similar to those obtained at the Anderson Hospital, that is, there is no satisfactory blood test for cancer.

"Blood Tests for Cancer" was discussed by eminent authorities in the field of cancer research at the annual cancer symposium of the M. D. Anderson Hospital held with the meeting of the South Central Section of the College of American Pathologists on May 12 and 13 in Houston. Past and present research activities in this field and broad psychologic influences on the public were considered.

It was stressed that an acceptable test must have (1) a high sensitivity in detecting cancer in its incipient stage, (2) a simple and inexpensive methodology so that it could be used in mass screening, and (3) a high degree of reliability. It was emphasized that the acceptable test must give positive results in at least 90 per cent of early local cancer cases and must give no more than 5 per cent false positive tests in noncancerous persons. There was unanimity of opinion that at present there is no blood test for cancer meeting the mentioned criteria and that prospects for such a test are not good in the foreseeable future. The early and accurate detection of the disease still depends upon the physician utilizing all the available proved methods of diagnosis such as careful physical examination, biopsy, diagnostic roentgenograms, and study of exfoliated cells.

Emphasis was given to the moral and ethical responsibility of physicians in vigorously discouraging the use of unproved methods in can-

This department of the JOURNAL *presents editorial comments on current items pertaining to the science, art, and practice of medicine, contributed by members of the State Medical Association and scientists closely associated with the medical profession of Texas. Invitation is hereby extended to any member of the State Medical Association of Texas to submit such discussions for this department. The discussions should not be more than 500 words in length.*

cer diagnosis. A popularized "cancer blood test" of no value that in time would be repudiated by the public might seriously disturb confidence of the patient in the physician's ability to diagnose cancer by already proved methods and seriously reduce the chance of early diagnosis and therapy. Until a test of proved merit has been found, researchers in the field and the best interest of the cancer patient will be served by allowing as little publicity as possible.

WILLIAM O. RUSSELL, M. D.,
Pathologist-in-Chief, and
LEONARD R. ORTEGA, M. D.,
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The University of Texas,
M. D. Anderson Hospital for Cancer Research,
Houston, Texas.

2310 Baldwin Street.

ORIGINAL ARTICLES

TUMORS OF THE MEDIASTINUM

MICHAEL E. De BAKEY, M.D., and OSCAR CREECH, M.D.,
Houston, Texas

MEDIASTINAL tumors have been generally considered relatively rare and usually hopeless lesions. During the past decade, however, they have assumed increasing significance. This change in concept may be accounted for by a number of factors, including (1) the more widespread use of routine roentgenologic examination of the chest and (2) the progress in thoracic surgery. The increasing practice of routine roentgenologic examination of the chest has revealed the presence of the lesions much more frequently than was formerly realized. Moreover, this has permitted their earlier detection, often before clinical signs are apparent, and at a stage in their development when successful surgical therapy can be applied.

Various methods have been proposed for the classification of mediastinal tumors depending upon their embryologic origin, location, congenital or acquired nature, and benign or malignant character. All such classifications have certain merits and certain limitation; because of its clinical usefulness, a simple classification based on location within the mediastinum is employed here.

ANTERIOR MEDIASTINAL TUMORS

Lymphoblastomas

Lymphoblastoma constitutes the most common primary malignant mediastinal lesion as well as the type most commonly encountered in the anterior mediastinum. In our experience they comprised approximately a third of the mediastinal tumors and well over a half of the primary malignant group.

Lymphosarcomas may arise from mediastinal lymph nodes or from the thymus gland. Often they begin in the anterior mediastinum and, growing rapidly, fill the entire superior mediastinum, extending up into the neck. They may involve the great vessels, the esophagus, and the tracheobronchial chain of lymph nodes and often extend laterally to invade the lungs. Grossly these lesions are firm, nodular, and often adherent to surrounding structures. In the more advanced cases, neoplastic tissue may fill the space between sternum and spine. In their earlier stages they may resemble nonlymphomatous tumors. Evans and Haight reported the removal of 4 such tumors, all of which were thought preoperatively to represent dermoid cysts.

Characteristically the disease occurs somewhat more frequently in males and is encountered at an earlier age period than other forms of mediastinal tumors. In our experience the age distribution has revealed an almost equal frequency during the first six decades. The clinical manifestations vary depending upon the type and rapidity of the growth and the extent of involvement and compression of the mediastinal structures. Pain, fever, weight loss, and edema of the face, neck, and upper extremities with prominence of the veins in this region suggestive of compression of the superior vena cava are fairly frequent manifestations. The progressive and often rapid development of these symptoms is characteristic of this disease.

Roentgenologically lymphosarcomas are usually observed in the anterior mediastinum as localized, multiple, nodular, and rounded shadows surrounding the bronchi and great vessels. Characteristically these tu-

From the Department of Surgery, Baylor University College of Medicine and the Jefferson Davis Hospital.
Read before the Section on Surgery, State Medical Association of Texas, Annual Session, Fort Worth, May 3, 1950.

mors have irregular, lobulated, and poorly defined borders that project bilaterally but usually appear more prominent on one side. Fleischner mentioned the high incidence of thoracic bone involvement in these tumors and described a retrosternal, boardlike infiltration which may precede any other changes, or four weeks, adds confirmation to this diagnosis. If the lesion appears to be discrete and unaffected by radiation, surgical exploration is warranted. In some instances in which the tumor is still fairly well localized good results may be obtained by extirpation.

Mediastinal Hodgkin's disease is only one manifestation of a condition which usually begins with enlargement of a cervical chain of nodes and extends to

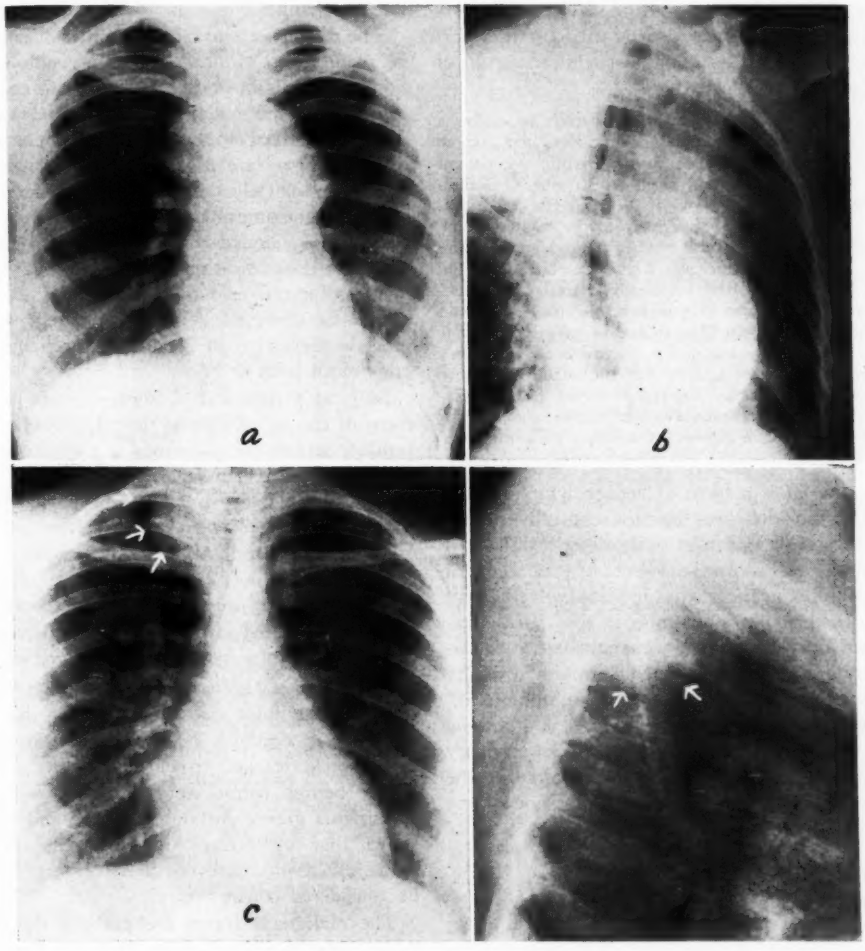


FIG. 1a. Case 1. An anterior posterior roentgenogram of the chest of a patient with Hodgkin's disease showing the widened shadow of the superior mediastinum with well-defined and slightly lobulated borders.

b. Case 1. An oblique roentgenogram of the chest showing the tumor to be in the anterior mediastinum.

c. Case 2. An anterior posterior roentgenogram of the chest of a patient with neurofibroma showing a smooth, rounded shadow in the right apical region.

d. Case 2. A lateral roentgenogram showing the tumor to be in the posterior superior mediastinum.

especially those of hilar and mediastinal lymphadenopathy.

If the clinical and roentgenologic evidence suggests the diagnosis of lymphosarcoma, a test dose (750 r to 1,500 r) of radiation should be employed. Rapid diminution in size of the lesion, usually within three

involve the inguinal, axillary, bronchial, and mediastinal groups. Enlargement of the spleen and liver, fever, and general wasting are usually present. In such cases, little difficulty is encountered in diagnosing the mediastinal tumor. Occasionally mediastinal involvement appears as a primary manifestation, and in such

instances the diagnosis may be difficult. The roentgenologic appearance varies with the stage of the disease. The mediastinal shadows may resemble those observed in lymphosarcoma but are usually somewhat denser and better defined with greater tendency toward a symmetrical pattern.

The diagnosis can usually be established by biopsy of one of the peripheral lymph nodes. Response to a test dose of radiation may also be used for this purpose. Treatment is by irradiation or administration of one of the nitrogen mustards.

CASE 1.—A 19 year old nurse was first seen because of a painful, tender swelling in the left supraclavicular region. The mass had appeared rather abruptly while the patient was under treatment for a mild, right otitis media. On examination a nodular mass was found to occupy the left supraclavicular fossa and extend superiorly to the region of the left lobe of the thyroid. Several cervical nodes were palpable bilaterally. The temperature was slightly elevated and the peripheral blood picture was essentially normal. Agglutinations for infectious mononucleosis were negative. A routine roentgenogram of the chest (fig. 1a and b) revealed bilateral upper mediastinal widening and a diagnosis of Hodgkin's disease was made. The diagnosis was confirmed by biopsy of a cervical node. Roentgen therapy produced a diminution of the mediastinal and supraclavicular masses and an improvement in the patient's general condition, permitting her return to work.

Boeck's sarcoid is a form of benign lymphogranuloma and is included here because clinically it may simulate the conditions previously described. In our experience it has comprised about 7 per cent of lymphatic tumors in the mediastinum. Involvement of the mediastinal nodes is common in this disease, occurring in 85 per cent of the cases analyzed by Reisner. The condition is characterized by a wide diversity of lesions although the organs most commonly involved are the skin and lymph nodes. It is a chronic condition lasting months or years with a tendency toward fibrosis and healing. In most instances the diagnosis can be established by biopsy of one of the superficial nodes.

Teratoid Tumors

The term teratoid tumors has been used by Harrington to include both dermoids and teratomas because most of these neoplasms contain elements of the three germinal layers. We believe that this is a useful clinical classification.

Among the primary tumors in the anterior mediastinum teratoid tumors are second in frequency to those of lymphatic origin, comprising between 15 and 20 per cent of primary mediastinal neoplasms. They may be cystic or solid, small or large enough to fill the entire mediastinum, and may remain quiescent for many years. Grossly their structure varies from a simple, thin-walled cyst containing fluid to the solid teratomas containing teeth, hair, skin, and in some instances derivatives of all three germinal layers. Occasionally a part of the cyst wall may undergo calcification.

Symptoms usually appear between the second and fourth decades owing to (1) compression of surrounding structures as they increase in size, (2) development of secondary infection, (3) rupture into a bronchus, blood vessel, lung, or pleura, and (4) malignant changes.

The diagnosis is usually not difficult and can often be made from clinical and roentgenologic observations. The insidious onset with intermittent symptoms often associated with respiratory infection and the expectoration of foul sputum, hair, sebaceous material, or blood are highly suggestive manifestations. Roentgenologically these tumors are characteristically located in the anterior mediastinum with well-defined borders. A rounded mass is suggestive of dermoid, especially if calcification is present along its peripheral margins, and if it has ruptured, a fluid level can usually be observed. A more lobulated, well-defined mass is suggestive of teratoma, especially if it contains tooth buds or bone.

Surgical extirpation of these lesions is the treatment of choice because of their frequent tendency to produce serious complications as a consequence of infection, rupture, and malignant change. The incidence of malignancy is variously reported from 20 to 40 per cent.

Thymic Tumors

Thymic tumors are probably the next most frequent forms encountered in the anterior mediastinum. Considerable difficulty has been encountered in providing a well-defined classification of these tumors according to their pathologic characteristics. For this reason it would seem desirable here to consider them in two broad categories, benign and malignant.

The benign forms are frequently associated with myasthenia gravis. Although Blalock and others have shown that thymectomy in such cases is often beneficial, the results have not been uniform and cannot be considered conclusive.

The malignant forms are perhaps equally if not more common than the benign types. They are generally divided into several types: (1) lymphosarcoma, the most common variety; (2) carcinoma arising from the reticulum cells; (3) sarcoma arising from the connective tissue stroma; and (4) the so-called granulomatous and teratoid types. Grossly these tumors are usually hard and nodular and tend to be encapsulated and to metastasize late. They are more likely to produce compression rather than invasion of the surrounding structures. For this reason clinical manifestations of compression frequently occur early. Roentgenologically these tumors appear as a circum-

scribed shadow in the anterior mediastinum between the sternum and pericardium. Although they are sometimes difficult to detect in the lateral view, the presence of a flattened disk-shaped shadow with well-defined densities immediately above the pericardium is highly suggestive of these tumors. Surgical excision should be attempted in all forms of these tumors unless metastasis has already occurred.

Pericardial Celomic Cysts

Pericardial celomic cysts are believed to arise from faulty development of the pericardium. Grossly they are thin-walled structures containing clear fluid. Symptoms are rarely produced unless the cyst is unusually large and thus causes compression of adjacent structures. Roentgenologically they appear as well-defined, rounded, fairly dense shadows adjacent to the cardiac silhouette. Although these cysts are usually benign, surgical extirpation is recommended since this is the only means of establishing the benignity of the tumor.

POSTERIOR MEDIASTINAL TUMORS

Neurogenic Tumors

Neurogenic tumors comprise the most common type of neoplasm occurring in the posterior mediastinum and probably 10 to 15 per cent of all primary mediastinal tumors. They have been variously classified, depending upon their histogenic nature, for example, nerve sheath, nerve fiber, nerve cell, and sympathetic or spinal nerves. For purposes of simplicity they may be divided as follows, depending upon their cellular structure: neurofibroma, ganglioneuroma, neurinoma, neuroblastoma, and neuroepithelioma.

The neurofibroma is the tumor found in Van Recklinhausen's disease and may contain any or all of the components of the nerve. It may arise from any portion of the spinal nerve and its extension into or out of the spinal canal gives rise to its occasional hourglass shape. Usually these tumors occur singly in the chest and are benign.

The ganglioneuromas arise from the dorsal sympathetic ganglionated chain. They are well encapsulated and firm. They occur more frequently in children than the neurofibromas.

Neurogenic tumors of the mediastinum have several characteristics in common which serve to distinguish them from other groups of tumors but at the same time pose a problem in differentiating each from the other. They almost invariably are found in the posterior mediastinum in the paravertebral gutter, where a large amount of nerve tissue is concentrated. With an increase in size, erosion of either ribs or vertebra may occur. Neurologic symptoms may not be seen and when present usually appear late. Symptoms are surprisingly few for such large, benign tumors; when present, they are due to pressure on the spinal cord, intercostal nerves, sympathetic chain, or other adjacent structure. Roentgenologic examination of the chest reveals a shadow of even density with sharp borders, with or without lobulation, located in the posterior and usually superior mediastinum.

These tumors are commonly diagnosed on routine roentgenologic examination of the chest. In spite of their symptomless early course, rapid enlargement and malignant change occur frequently enough to warrant excision. From several large reported series, the incidence of malignancy has been found to be 20 to 30 per cent. Lobulation and bone erosion are indicative of malignant lesions although there are exceptions.

The treatment of these tumors is surgical excision. Small, asymptomatic tumors may be kept under close observation, but the high incidence of malignant change makes this practice dangerous.

CASE 2.—A 22 year old white woman on a routine roentgen examination of the chest (fig. 1c and d) was found to have a small, rounded shadow in the right posterior-superior mediastinum which was entirely symptomless. Surgical excision was carried out and histologically the lesion proved to be a neurofibroma arising from the third intercostal nerve.

CASE 3.—A 35 year old white man was told in 1936 that he had an abnormal shadow in the center of his heart. This diagnosis was made after routine roentgen examination of the chest (fig. 2a and b). This mass was observed until 1949, when he was referred to us. Lateral films showed the shadow to lie in the posterior mediastinum between the eighth and eleventh ribs. A diagnosis of neurogenic tumor was made and removal accomplished without difficulty. The tumor histologically was a ganglioneuroma arising from a dorsal sympathetic ganglion.

Gastroenterogenous Cysts

Gastroenterogenous cysts, interesting and rather uncommon tumors, are found in the posterior mediastinum and principally on the right. Obviously congenital in origin, several explanations have been proposed for their development: (1) pinching off of buds or diverticula of the foregut; (2) intrathoracic vestiges of the omphalomesenteric duct; (3) fetal inclusion; and (4) embryonic diverticulum or epithelial entodermal remnant capable of further development.

Their structure varies. In one instance the cyst may be composed of a thin wall lined with nonfunctioning gastric mucosa; in another, the lining may contain, in addition to the gastric mucosa, ciliated respiratory epithelium. Finally, the cyst may be a stomach in miniature with three muscle layers, submucosa, and a lining epithelium of parietal, chief, and goblet cells. The latter variety often retains functional activity and peptic ulceration may occur with hemorrhage, perforation into the pleural cavity or lung, or erosion into a

neighboring structure. The cysts occur primarily in infants and children and give rise to distressing symptoms as a result of pressure or ulceration. Cough, cyanosis, and dyspnea are not infrequently seen. Should the cyst communicate with the esophagus, melena and hematemesis may occur. Repeated episodes of unexplained dyspnea, cyanosis, or hemorrhage in the young

SUPERIOR MEDIASTINAL TUMORS

Bronchiogenic Cysts

Bronchiogenic cysts are considered congenital in origin, formed by a pinching off of a small bud from the foregut or tracheal anlage.

Although they may be found anywhere in the mediastinum, they usually lie in the posterior, superior

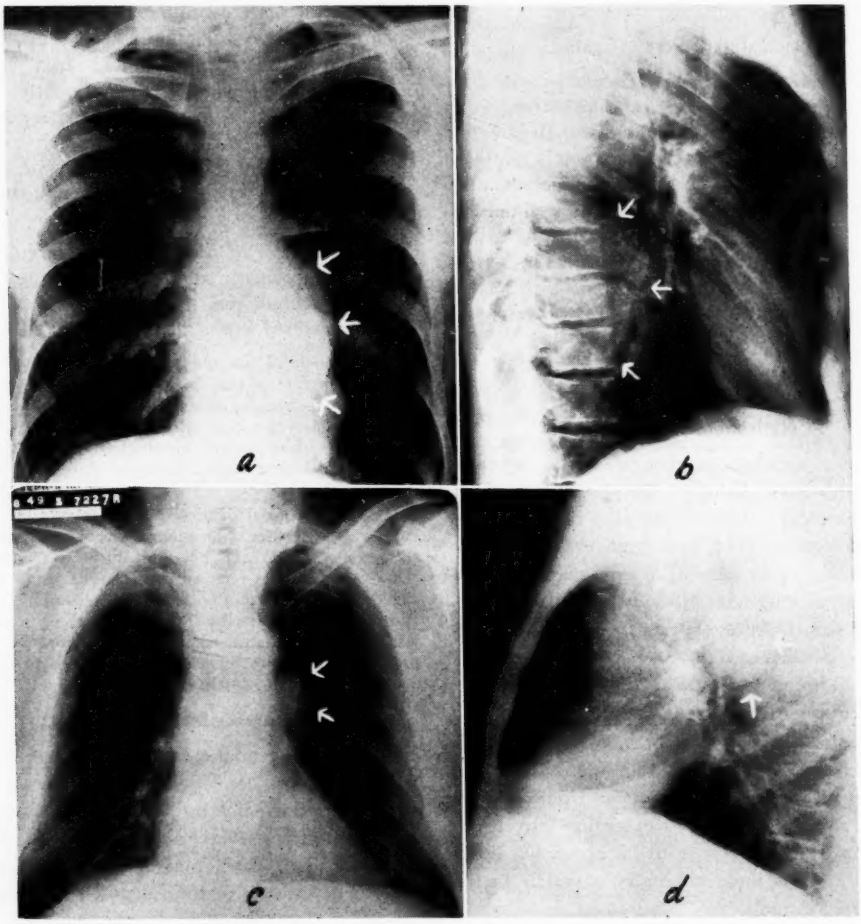


FIG. 2a. Case 3. An anterior posterior roentgenogram of the chest of a patient with ganglioneuroma showing a well-rounded shadow with clearly defined borders projecting into the left side of the chest and superimposed over the cardiac shadow.

b. Case 3. A left lateral roentgenogram showing the shadow to lie in the posterior mediastinum.

c. Case 4. An anterior posterior roentgenogram of the chest of a patient with a bronchiogenic cyst showing a circumscribed shadow lying near the hilum of the lung on the left side.

d. Case 4. A lateral roentgenogram showing a well-rounded tumor lying just behind the bifurcation of the trachea.

should suggest the possibility of a gastric cyst. The roentgenologic observation of a well-circumscribed tumor in the right posterior mediastinum corroborates such a diagnosis.

Treatment is either complete surgical excision or destruction of the lining epithelium when excision is not possible.

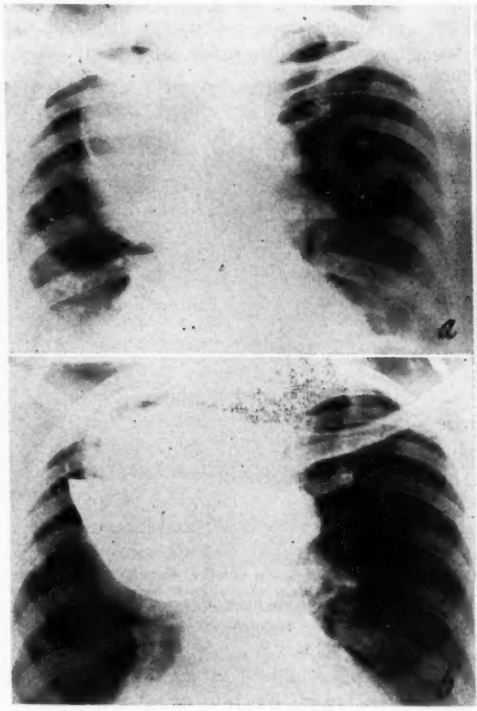
mediastinum near the bifurcation of the trachea and may be attached to the trachea or bronchi by a stalk. Grossly they are round or ovoid and contain a clear, jelly-like fluid. Microscopically all the tissues normally found in the trachea and bronchi may be observed in these cysts. The lining is composed of a ciliated, pseudostratified, columnar epithelium and

has numerous secreting glands and plaques of cartilage in the submucosa.

They are generally asymptomatic unless infection occurs, and the diagnosis depends in large measure on roentgenologic examination, which usually reveals a fairly smooth, round, or ovoid shadow in the superior mediastinum. The mass may resemble a teratoid tumor or a primary nerve tumor, but as emphasized by Blades, the lateral roentgenogram is of special diagnostic significance in this connection since bronchiogenic cysts do not usually occupy the extreme posterior position common in most primary nerve tumors nor is the shadow of the mass usually so distinct as is the case with teratoid tumors. Fluoroscopy may also be of value, for being attached to the trachea, the mass may be seen to move with swallowing. Study of the esophagus and tracheobronchial tree with radiopaque material may also be helpful.

Treatment is by surgical excision even if the tumor is asymptomatic. This is advisable for several reasons: (1) a positive diagnosis cannot otherwise be made of any asymptomatic tumor of the mediastinum, (2) the lesion may become infected or increase in size and thus produce symptoms, and (3) there is no reason why these cysts may not be the seat of malignant change.

CASE 4.—A 66 year old man consulted his physician because of indigestion and flatulence. Roentgen-ray examination of the chest revealed a rounded mass extending out from the left hilar region in the superior mediastinum (fig. 2c and d). A diagnosis of bronchiogenic cyst was made, and exploratory thoracotomy was performed. The cyst was characteristically attached to the left main stem bronchus near the carina and was lying in the posterior superior mediastinum. Removal was accomplished without difficulty.



b. Case 5. An anterior posterior roentgenogram after ingestion of barium showing extensive dilatation and abnormal displacement of the esophagus by the tumor mass.

FIG. 3a Case 5. An anterior posterior roentgenogram of the chest of a patient showing a large mass with well-defined borders in the superior mediastinum projecting into the right pleural cavity.

c. Case 5. A lateral roentgenogram showing the tumor mass to be in the posterior part of the superior mediastinum.

Thyroid Tumors

The thyroid gland may give rise to tumors in the superior mediastinum from downward extension of the cervical gland with the production of so-called substernal goiter from nodules of multiple adenomatous goiter or from ectopic thyroid tissue. The first and most common form, substernal goiter, which is simply a partial intrathoracic extension of a cervical goiter, may be excluded from this discussion; only those tumors which lie in the mediastinum completely below the thoracic inlet are pertinent. Most of these lie anteriorly high in the mediastinum and produce little problem either in diagnosis or management. Of particular significance are those which lie posteriorly in the superior mediastinum because they may be con-

fused with other primary mediastinal tumors and because they usually require an intrathoracic approach for their removal. Roentgenologically this lesion often resembles the neurogenic mediastinal tumors. Clinical manifestations are usually produced through compression of the trachea or esophagus, and displacement of these structures may be readily determined by proper roentgenographic studies.

Surgical extirpation, usually through an intrathoracic approach, is indicated either for relief of symptoms, because growth should be anticipated, or because of the doubt that may exist of the exact nature of the mediastinal tumor.

CASE 5.—A 60 year old Negro woman when first seen was complaining of shortness of breath, dysphagia, and cough. Chest roentgenograms revealed a large ovoid mass in the posterior mediastinum, and on barium study the esophagus was found to be almost completely occluded from anterior compression by the mass (fig. 3). The preoperative diagnosis was probable neurogenic tumor. At operation the mass was found to be of thyroid origin and to be attached to the cervical portion of the gland by a stalk. Removal of the mediastinal mass was accomplished without incident.

SECONDARY MALIGNANT TUMORS

Mediastinal lymph node metastases generally arise from primary tumors in the bronchi or esophagus although occasionally the primary growth will be found elsewhere. When the metastasis originates in bronchiogenic carcinoma, there is usually a unilateral, irregular enlargement of the superior mediastinal shadow since the nodes about the tracheal bifurcation are most often involved. Diagnosis of the bronchial malignancy establishes the identity of the mediastinal tumor.

Mediastinal metastasis alone does not preclude thoracic exploration since often both primary and secondary lesions can be surgically removed.

CASE 6.—A 53 year old white man gave a history of hemoptysis precipitated by an infection of the upper respiratory tract one year previously. Following this episode, which lasted two or three weeks, he was well except for a cough productive of small amounts of blood-flecked sputum. Three months before admission he noted distention of the neck veins and a feeling of fullness in the head.

Examination revealed only a limitation of motion of the right portion of the chest. Roentgenograms of the chest revealed a widened superior mediastinum and an area of infiltration in the apical segment of the upper lobe of the right lung (fig. 4). After tuberculosis and aortic aneurysm were ruled out by appropriate studies, exploratory thoracotomy was performed. A bronchiogenic carcinoma of the upper lobe of the right lung was found with extensive mediastinal metastasis which precluded resection.

MISCELLANEOUS TUMORS

Lipomas.—According to Huer and Andrus, lipomas may be divided into three groups: (1) those which extend through the chest wall with an hour-glass configuration; (2) those in which the mediastinal tumor extends up through the superior aperture of the thorax into the neck; and (3) those which lie entirely within the thorax. The symptoms are those of mediastinal mass. The roentgenologic signs are not characteristic and the tumor may be mistaken for fluid. Removal is indicated because of pressure symptoms.

Fibromas.—These tumors may arise anywhere in the thorax and are in no way characteristic. However, because they cast a well-defined shadow on roentgenologic examination, the diagnosis of mediastinal tumor is readily made. Malignant degeneration may take place as well as rapid growth leading to interference with function of adjacent mediastinal structures; hence removal is indicated.

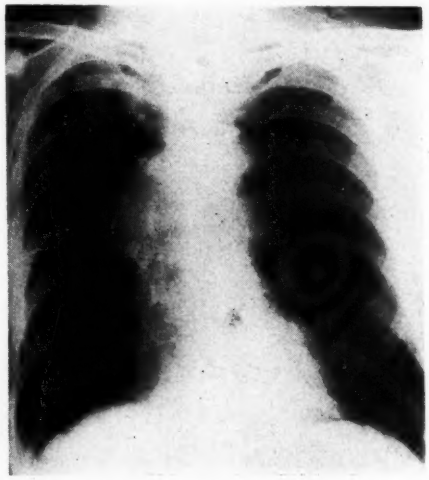


FIG. 4. Case 6. An anterior posterior roentgenogram of the chest of a patient showing a shadow near the right hilum of the lung projecting peripherally with rather ill-defined borders produced by metastases from a bronchiogenic carcinoma of the right lung.

Blood Vessel Tumors.—Aneurysms do not properly fall into a classification of mediastinal tumors, but they may give rise to much confusion from the standpoint of diagnosis. Often they resemble true neoplasms of the mediastinum by virtue of their roentgenologic appearance and symptoms, and occasionally only by thoracic exploration can they be differentiated. Expansile pulsation on fluoroscopy is a useful distinguishing feature, and recently angiocardiography has been used with success in determining the nature and location of these lesions.

Hemangiomas, which are rare, frequently malignant tumors, may be found anywhere in the mediastinum. There is nothing distinctive in their symptomatology or roentgen appearance and only at exploration are they diagnosed. Seybold and others have collected 14 cases from the literature and added 3

cases of their own. Ten of these 17 tumors were malignant.

Chondromas.—There remains a miscellaneous assortment of tumors which have only their connective tissue origin in common. Chondromas may arise from the costal cartilages, costovertebral articulations, sternum, and articular surfaces of the intervertebral disks. They may be simple, benign growths, or more complex neoplasms such as chondromyzomas or chondrosarcomas. Usually their skeletal attachment, evident on roentgen-ray examination of the chest, is sufficient for a presumptive diagnosis. Treatment is by surgical excision. When these tumors involve the ribs, excision of large segments of the chest wall may be necessary for their removal.

Xanthomas.—These tumors are so uncommon as to be regarded as histologic rarities when encountered in the chest.

SUMMARY

Some of the pertinent features of the commonly encountered mediastinal tumors have been presented. As a group they are relatively rare. The most common primary types are the lymphatic, teratoid, and neurogenic tumors. Among the latter, ganglioneuroma is somewhat more common than the neurofibroma. Bronchiogenic, gastric, and pericardial celomic cysts are rare.

The majority of mediastinal tumors are malignant and even the benign types are potentially malignant.

Most of these lesions appear before the patient reaches the age of 40 and many are seen in the first and second decades. Although symptoms may appear to direct the physician's attention to the thorax, these lesions are frequently "silent" and only with inauguration of mass chest roentgen-ray programs have they been commonly diagnosed preoperatively.

Teratoid, thymic, and lymphatic tumors and pericardial celomic cysts are commonly found in the anterior mediastinum. Neurogenic tumors and gastric cysts occur mainly in the posterior mediastinum. The bronchiogenic cysts and thyroid tumors are usually found in the superior mediastinum. Vascular tumors, lipomas, and fibromas may be found anywhere.

Owing to the high incidence of malignancy, the presence of a mediastinal tumor with or without associated clinical manifestations demands the prompt establishment of a positive diagnosis. The policy of "watchful waiting" for asymptomatic mediastinal masses is no longer justifiable. Successful therapy depends upon early detection and early removal. At present the risk of exploratory thoracotomy in qualified hands may be considered negligible provided the patient is in reasonably good condition.

If the diagnosis cannot be established preoperatively, two methods of approach are available: radiation therapy and exploratory thoracotomy with the purpose of surgical extirpation. The choice between these two methods depends essentially upon the tentative diagnosis, that is, whether or not the tumor is lymphogenous. If there is good clinical and roentgenographic evidence of a lymphogenous tumor, a test dose of radiation should be employed. Prompt improvement with rapid diminution in size, usually within three to five weeks, adds confirmation to the diagnosis. In the absence of such improvement and in all other types of mediastinal neoplasms, exploratory thoracotomy should be employed unless surgical intervention is contraindicated because of the patient's condition.

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ABSTRACT OF DISCUSSION

DR. ROBERT R. SHAW, Dallas: It has been demonstrated that the mediastinum can be explored and tumors removed from that region with a negligible risk. As a by-product of the chest surveys now being carried on for the detection of pulmonary tuberculosis, many of these tumors are being found in the asymptomatic stage. The major problem that is presented is what advice to give the patient whose chest has been found to contain a tumor of this group. Too often the patient is told: "The tumor is not bothering you, so why bother it."

This advice is dangerous for several reasons. (1) These tumors do have a growth potential and can attain large size, at which time it may be more difficult and more dangerous to remove them. (2) The tumors do not remain asymptomatic but by pressure upon important structures may cause severe symptoms and even become emergency problems. Lately I have had 2 emergency cases of tracheas compressed by tumors, and it was necessary as a lifesaving measure to

operate upon the patients immediately after their admission to the hospital. (3) Certain of the cysts which fall in this group of lesions may develop a communication with the bronchi and become infected. Once this has happened their removal is much more difficult. (4) Most important, tumors of the mediastinum show a tendency to become malignant in a percentage ranging from 10 to 30. It is impossible to predict what individual tumor will become malignant, and once the malignant change has taken place it is too late to save the life of the patient.

Recently Dr. Donald L. Paulson and I have reviewed our experience with 64 patients having tumors of the mediastinum upon whom we operated between the years 1944 and 1949. This group does not include patients in whom only a biopsy was done for diagnostic purposes or patients who had obvious mediastinal tumors such as lymphosarcoma or Hodgkin's disease. We have classified our tumors according to their origin and have found that roughly one-third were tumors of congenital origin; 9 of these tumors were teratoid tumors of the anterior mediastinum. In 2 instances these tumors have proved to be malignant. Another third of the tumors were tumors of neurogenic origin found in the posterior mediastinum. These were generally well encapsulated and the results of surgery were good. One tumor in this group, however, was a sympathicoblastoma which was highly malignant and later caused the death of the patient through extensive metastases. The remaining third of the patients had tumors originating from various sources such as the thymus gland, thyroid gland, lymph node, granulomatous tissue, and vascular tissue.

Although there have been no operative deaths in this series 4 patients have died of tumors which were malignant at the time of surgery. In 1 patient, a malignant thymoma was observed for a period of seventeen years, being confused with enlargement of the heart. It was only after the tumor had become malignant and began to cause severe symptoms that the true nature of the large shadow in the chest was recognized. The main tumor mass was removed, but the extensive infiltration of the tumor in the structures of the mediastinum could not be removed. Autopsy eighteen months after surgery revealed that the myocardium had been almost two-thirds replaced by the infiltrating malignant thymoma. Two patients with malignant teratomas of the anterior mediastinum have succumbed to their disease, and the previously mentioned patient having a sympathicoblastoma comprised the other death. Several other tumors, chiefly the neurogenic tumors, were reported by the pathologist as being malignant. However, they were well encapsulated and so far the patients have done well following their removal.

This tendency for a certain number of mediastinal tumors to become malignant added to the potential growth of the tumor to large size and the possibility of complications such as infection and encroachment upon vital structures makes it mandatory that these tumors should be removed unless there is some compelling reason why surgery should not be undertaken.

DIAGNOSIS OF PRIMARY CARDIAC NEOPLASMS

W. W. COULTER, JR., M.D., Houston, Texas

UNTIL comparatively recent times the diagnosis of cardiac neoplasms prior to death was a matter of academic interest inasmuch as no curative or palliative treatment was known. The strides made in the last decade in cardiac surgery, however, have made even persons with intracardiac neoplasms candidates for remedial procedures in properly selected cases.

Primary neoplasms of the heart, unlike secondary ones, are uncommon; Leach found only 1 in a series of 6,275 autopsies. Lymburner, however, found 4 in 8,500 autopsies. Although more frequent in the younger age group, they may occur at any age. From these figures it is evident that the majority of practitioners either have seen or are likely to see one or more patients who have such neoplasms. Since the condition may be subject to curative therapy and is not of sufficient rarity that it can be disregarded, every physician should be familiar with the signs and symptoms.

The most common primary neoplasm of the heart is the myxoma. These lesions occur in the left atrium with such regularity that diagnosis of the tumor is to a large degree dependent upon recognition of its location. They are usually pedunculated, the point of attachment being most often the interauricular septum over the closed foramen ovale. They may be smooth and roughly spherical or may be irregular; in the latter case embolic phenomena to the greater circulation are frequent. Fragments of neoplastic tissue may be present in such emboli.

DIAGNOSIS

In common with other cardiac neoplasms the most frequent symptom complex causing the patient to consult a physician is that of intractable congestive heart failure. Certain points in the history may be helpful; the absence of a history of rheumatic fever when coupled with findings suggestive of rheumatic heart disease should arouse some suspicion inasmuch as rheumatic heart disease is the most frequent misdiagnosis in cases of tumor of the left atrium. The patient may state that he has had "spells" or "attacks" in which he became unconscious or nearly so and that these were relieved by change in position. Should

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the patient be seen during one of these attacks the symptoms would resemble an acute circulatory failure with pallor, thready or absent pulse, cold extremities, and a shocklike state. The occurrence of such phenomena with spectacular relief on change in position is almost pathognomonic of either a pedunculated intracardiac neoplasm or a ball valve thrombus, free or pedunculated. The symptoms are caused by obstruction to the flow of blood through the heart as a result of the tumor (or thrombus) becoming wedged in the mitral orifice. Localized necrosis of the tip of the nose, fingers, or toes may result if the interference with circulation is prolonged. Sudden death may occur in the acute attacks. It is difficult in some cases to understand how more than a minimal amount of blood could at any time pass the huge tumor distending the atrium. A myxoma 8.5 cm. in its greatest diameter has been described inside the left atrium,

FIG. 1. Photograph of a myxoma of the left atrium showing the large size that may be attained (8.5 cm.).

its weight approximating that of the entire heart exclusive of the neoplasm (fig. 1).

Precordial pain of long duration has been described. The mechanism of its production is not clear.

The presence of such a mass in juxtaposition to the mitral valve creates an impediment to the flow of blood at that point and may interfere with proper closure of the valve. The present illness may consequently suggest mitral stenosis and insufficiency. This impression is likely to be strengthened on physical examination, since systolic and less often diastolic murmurs are heard in the mitral area with great frequency and for obvious reasons. The murmurs, however, may change in character or intensity with change in position, or even appear and disappear. For this reason different examiners may disagree on the findings. Failure to respond to treatment suggests neoplasm, but response does not rule it out.

The electrocardiogram is not distinctive. Auricular fibrillation is common. There may be a right axis deviation, and the P wave may be prominent. Radiography and fluoroscopy may reveal enlargement of the atrium. This is not evident in the usual posteroanterior view; thus the heart shadow may be normal. Cardiac enlargement may be present and the pulmonary artery may be prominent (fig. 2). It would seem that angiocardiography would be helpful in outlining such tumors, and Mahaim described a lacunar intra-auricular shadow, seen with radiopaque media, as a definite sign of intra-auricular tumor. However, inasmuch as the left atrium is not well visualized in normal angiocardiographs, no suspicion is ordinarily aroused by some filling defects.

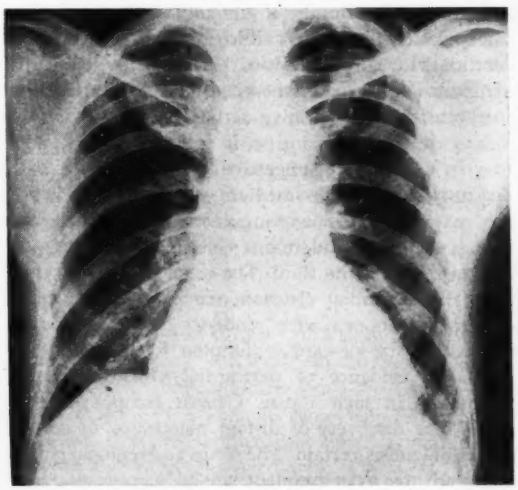

FIG. 2. Teleoroentgenogram of a patient with a cardiac tumor (same as fig. 1) showing the nonspecific nature of roentgen-ray changes. (Courtesy of the Radiology Department, Jefferson Davis Hospital.)

Neoplasms in the left atrium are in most cases not clinically distinguishable from free or pedunculated ball thrombi, and some pathologists have expressed the opinion that myxomas are actually organized thrombi. Although this question is still unsettled, the weight of evidence seems to indicate that they are true neoplasms rather than thrombi. This is of no clinical importance inasmuch as the treatment for both is surgical removal.

Right atrial benign neoplasms are rare but would be expected to produce signs and symptoms of vena caval obstruction, tricuspid stenosis, and tricuspid insufficiency. Tumors in this location should be readily demonstrable by angiocardiography.

Rhabdomyomas of the heart are less common than myxomas except in persons with tuberous sclerosis of the brain, in whom the reverse is true. These lesions may be suspected when cardiac enlargement and ir-

regularity are found without evident cause in mentally deficient children. There may be a history of convulsive seizures. Treatment of rhabdomyomas is unsatisfactory.

Other benign tumors of the heart have been described but are too rare to warrant consideration here.

Sarcoma of the heart may manifest itself by the occurrence of heart failure without demonstrable cause and intractable to treatment. Roentgen ray may reveal localized irregularity of the cardiac shadow. Creation of an artificial pneumopericardium may aid greatly in localizing and identifying the tumor. There may be electrocardiographic evidence of irregularities in depolarization, their location depending on the location of the tumor; if the tumor involves a coronary vessel, the electrocardiogram may reflect interference with coronary blood flow, and there may be symptoms of cardiac ischemia. Auriculoventricular or intraventricular block may occur. If the neoplasm involves the right atrium, as it frequently does, there may be a syndrome suggestive of superior vena caval obstruction. If the pericardium is involved, a friction rub may be heard. Serosanguineous pericardial effusion is common, and tumor cells may sometimes be demonstrated in the fluid. The usual signs and symptoms of pericardial effusion, namely pain, dyspnea, extreme orthopnea with tendency to lean forward, increase in size of cardiac dullness, Ewart's sign, and radiologic evidence of pericardial effusion, present themselves in such a case. Cardiac tamponade may result. The discovery of distant metastases, of course, makes diagnosis certain. The lungs and regional lymph nodes are the most frequent site of metastases.

When evidence of a malignant cardiac neoplasm is discovered, a search should be made for a primary site other than the heart, since secondary cardiac tumors are much more common than primary. The identification of tumors metastatic to the heart is less difficult than that of primary ones, especially if the primary site has been recognized. Such a diagnosis does not benefit the patient, except that a contemplated operation may be canceled.

SUMMARY

The diagnosis of primary cardiac neoplasms has assumed an importance which it did not formerly have, since curative surgery may now be considered. Myxoma of the left atrium is the most amenable to surgery and presents certain features which make its recognition possible if it is borne in mind. Rhabdomyomas and sarcomas also occur and may be diagnosed, but they are not amenable to surgery.

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Department of Medicine, Louisiana State University School of Medicine, New Orleans.

Cancer Lectureship Established

An annual lectureship to cover the most significant single advance in the field of cancer research during the previous year was announced at the fourth annual symposium on fundamental cancer research sponsored by the M. D. Anderson Hospital for Cancer Research in Houston in May. The lectureship was established by the Bertner Foundation of Houston and will provide for a medallion as well as an honorarium for the lecturer.

Announcement was also made of a reciprocal exchange fellowship program with the Memorial Hospital Center for Cancer and Allied Diseases in New York. A grant from the Houston Endowment Foundation, of which Jesse H. Jones is president, provides that each fellowship will be known as the "Jesse H. Jones Fellowship in Cancer Education Honoring Dr. E. W. Bertner" and will cover an annual stipend not to exceed $5,000. Yearly renewals for a total not to exceed three years may be arranged.

Eighteen states were represented this year at the cancer symposium, which was held in conjunction with a cancer pathology conference conducted by the University of Texas Postgraduate School of Medicine and a meeting of the South Central Region of the College of American Pathologists.

Texas Cancer Grants Announced

Twenty cancer control projects in Texas have just received appropriations totaling $118,123.73 from funds raised in the Texas Cancer Crusade. Recipients include tumor clinics, information centers, and professional service groups in eleven Texas cities. Dr. William F. Mengert, Dallas, chairman of the committee on projects and allocations of funds of the American Cancer Society, said that one-fourth of all cancer society funds goes into research on the causes and possible cures of the disease.

The modern approach to health increasingly stresses personal responsibility, and to this end health education should include a knowledge of germs and how they are spread, of physiology and how to apply it, and of biology in its importance to the welfare of man.—C. Fraser Brockington, M. A., M. D. Camb., D.P.H., The Lancet, Oct. 22, 1949.

CARCINOMA OF THE COLON AND RECTUM

Review of 554 Cases from 1918 to 1943

G. V. BRINDLEY, M.D., F.A.C.S., and R. R. WHITE, M.D., F.A.C.S.,
Temple, Texas

PRIOR to 1826, surgery of cancer of the colon and rectum was restricted to relief of obstruction.[5] In that year, the first attempt was made to cure the underlying malignant disease when Lisfranc resected a cancer of the rectum. The hope of cure was given impetus in 1832 by Reybord, who first successfully resected a colonic cancer with reestablishment of bowel continuity by anastomosis. Since that pioneering day, the management of malignant disease of the colon and rectum has been synonymous with the development of the art and the practice of surgery. In few fields of human endeavor have greater obstacles been overcome with comparable rewards in the relief of human suffering and prolongation of life.

STATISTICAL SUMMARY

From 1918 to 1943, 554 cases of adenocarcinoma of the colon and rectum were seen at the Scott and White Clinic; an incidence of 1 cancer of the large bowel for each 456 general clinic admissions. A review of these cases reflects the changing concepts and accomplishments of this twenty-five year period.

A total of 385 patients accepted surgical treatment, and in 241 of these cases, a resection of the large bowel for cancer was carried out, giving a resectability rate of 62.5 per cent. A resectable lesion is defined as one in which a reasonable chance exists that all gross cancer may be removed despite spread to lymph nodes or to adjacent viscera. Palliative resections with extensive liver metastasis or carcinomatosis are not included. The postoperative mortality in these 241 resected lesions was 9.5 per cent.

A minimum follow-up of five years was obtained on 239 cases, or 99.1 per cent of the total. An analysis of these cases suggests certain points worthy of discussion, particularly in regard to differences between those patients who survived five years after bowel resection and those who did not.

Of the 239 followed cases including postoperative deaths, 132 or 55.2 per cent of patients with cancer of the colon and rectum in this series survived five years or more after surgical resection of the lesion.

FACTORS IN PROGNOSIS

Early Diagnosis.—It is well-known[1] that the rate of cure of cancer is related to early diagnosis in the chronological age of the lesion, and in the foreseeable future the long survival rates probably will be increased more by earlier recognition of cancer and therefore earlier definitive treatment than by any other practical means. The average duration of symptoms before surgery in the group of five year survivals was 10.2 months, while those patients who died in the five years after resection had prior symptoms for 11.9 months. There is no significant difference between the two groups, which indicates that the duration of symptoms is not necessarily related to the chronological age of the cancer and which is due, no doubt, to the multiplicity of causes, both benign and malignant, of pain, constipation, diarrhea, and melena. This observation serves to emphasize that cancer of the large bowel is a slowly growing disease which usually gives ample warning of its presence while it is in a curative stage, but that even though these early signs are ignored by the patient or are unrecognized by the doctor, cure may be achieved by radical surgery in more than half the cases with an average duration of symptoms exceeding ten months.

Size of Cancer.—The size[3] of the cancer resected apparently has little influence on prognosis, as the average recorded measurement was 5.5 cm. in the five year survivals and 5.6 cm. in those who did not live five years. It is well known that small carcinomas of the bowel may be associated with widespread nodal metastasis or liver involvement, whereas the surgeon may be pleasantly surprised to find large lesions which are apparently still localized and resectable.

TABLE 1.—*Grade of Lesion by Broders' Classification with the Percentage of Five Year Survivals in Each Group.*

Broders' Classification	Cases	5 Year Survivals
Grade 1	11	81.8%
Grade 2	118	61.9%
Grade 3	101	44.5%
Grade 4	3	2 patients
	233	

Grade of Cancer.—Of more importance in prognosis are the grade and extent of the lesion.[2] Table 1 illustrates that by Broders' classification, the extremes of grade 1 and grade 4 cancers are relatively uncommon in this series (polyps removed by local excision are not included in this study), whereas grade 2 and grade 3 cancers comprise 94 per cent of the total graded lesions. A patient with a grade 1 resectable lesion had an 81.8 per cent chance of surviving five years; if the lesion was grade 2, the rate was 61.9 per cent; but if grade 3, the rate dropped to 44.5 per cent.

Read before the Section on Surgery, State Medical Association of Texas, Annual Session, San Antonio, May 4, 1949.

Extent of Cancer.—Of the greatest importance in determining prognosis as well as resectability is the extent of the lesion. As illustrated in table 2, 9.6 per cent of the cancers were still confined to the mucosa and submucosa; 17.3 per cent had invaded the muscularis; 46.5 per cent had, in addition, penetrated the entire thickness of the bowel wall but not beyond; and 26.6 per cent of the entire group showed microscopic proof of glandular metastasis. The complete thickness of the colon was penetrated in 72.8 per cent of the total series. If the lesion was still confined to the mucosa and submucosa, 65.2 per cent lived five years. If the muscle only was invaded, 75.6 per cent lived five years. However, if the entire wall of the bowel was involved without further extrinsic spread, the five year survivals dropped to 58.1 per cent. This report serves to confirm impressions gained from earlier studies that lymph glandular spread remains the most important factor in determining prognosis. If the patient had large bowel cancer involving the lymph glands, only 32.2 per cent lived five years, whereas if the cancer had not invaded regional lymphatics, the five year survival rate rose to 63.1 per cent.

TABLE 2.—*A Summary of the Pathologist's Report of the Amount of Penetration of the Bowel and Gland Involvement of the Cancer with the Percentage of Five Year Survivals in Each Group.*

Involvement	Cases	Percentage	5 Year Survivals (%)
Mucosa and Submucosa	23	9.6	65.2
Muscle	41	17.3	75.6
Serosa	110	46.5	58.1
Glands	62	26.6	32.2
	236	100.0	
Negative Glands	174	73.4	63.1

There has long been a general impression that cancer of the large bowel in the patient less than 40 years of age may carry a poor prognosis. It is encouraging to note that 29 patients were less than 40 years old, and the five year survival rate was 55.1 per cent, which is similar to the rate of the entire series. Six patients were in their twenties and half of these survived five years. Glandular metastasis may indicate the same prognosis in both the young and the old, as 27.2 per cent of patients less than 40 years of age with metastasis to the glands lived five years. (The five year survival rate of all patients with glandular metastasis was 32.2 per cent.) The results of this study would suggest, therefore, that the age per se of the patient with cancer of the large bowel has little influence on five year survival rates. This does not preclude the possibility that glandular metastasis may occur earlier in the life of the cancer in the younger age groups.

Adenocarcinoma of the colon which obstructs the bowel is of serious import.[6] The study reveals that of the resected lesions, 36 patients presented themselves to the Clinic initially with signs of intestinal obstruction, graded 1 to 4 according to the clinical severity of the obstruction. All of these patients had resection of the lesions after preliminary decompression, with 3 deaths or a mortality rate of 8.4 per cent. The five year survival rate in patients with obstruction was 47.2 per cent, a figure somewhat lower than but still within the range of the five year survival rate (55.2 per cent) of the entire study. It is worthy of emphasis that although the patient presents himself with such a serious complication as obstruction of the colon, if preliminary decompression is done or a multiple staged procedure is utilized and the patient is restored to physiologic balance, subsequent bowel resection can be performed without increased mortality or greatly reduced prognosis for five year survival.

Irradiation.—Concerning the effects of irradiation upon the prognosis of carcinoma of the colon and rectum, it is difficult to draw conclusions since the early cases in the series were not standardized as to methods of treatment because of the changing concepts of irradiation therapy during this twenty-five year period. It is interesting to note that 98 cases received roentgen-ray and/or radium treatment in conjunction with definitive surgical excision of the lesion, and that 60.2 per cent survived five years, as compared with the five year survival rate of 55.2 per cent for the entire group. Our records list 2 patients with large obstructing cancers of the rectum, confirmed by pathologic study, treated only by palliative sigmoidostomy followed by application of radium and deep roentgen-ray therapy, who are apparently free of disease eight and nine years respectively following treatment. It may be suggested that irradiation treatment after surgery may be justified or, at least, worthy of further study in cancers of the rectum and lower sigmoid with glandular metastasis.

TABLE 3.—*Location of 239 Resected Cancers with Operative Mortality and Five Year Survival Rates for Each Group.*

Location	Cases (%)	Operative Mortality (%)	5 Year Survivals (%)
Cecum	10.8	15.3	61.1
Ascending Colon	3.8	0	55.5
Hepatic Flexure	4.6	36.3	45.4
Transverse Colon	7.4	11.1	50.0
Splenic Flexure	3.7	22.2	44.4
Descending Colon	5.3	7.6	38.4
Sigmoid	17.0	14.6	60.9
Rectosigmoid	9.2	4.5	59.9
Rectum	38.2	3.3	55.5
	100.0		

Operative Procedure.—The nature of the operative procedure is of paramount importance in the cure of cancer of the colon and rectum.[4] Of the 241 patients treated by resection 27.8 per cent had a one stage resection of the bowel with a mortality rate of 13.4 per cent. The remainder of the patients (72.2 per

cent) had a multiple stage procedure with a mortality rate of 8.1 per cent. It must be borne in mind that these patients were all operated upon prior to August, 1943, and that the newer antibiotics and sulfa drugs were not used in the great majority of the cases. The preponderance of multiple stage procedures was in keeping with surgical concepts of that day, which were substantiated by the lower mortality and increased protection to the patient. At present at the Clinic we reserve multiple stage procedures only for the patient with obstruction, perforation, or significant inflammation. The mortality rate for resection of all cancers of the colon and rectum was 2.5 per cent for the year 1948.

The five year survivals and mortality rates are classified according to the location of the cancer in the bowel in table 3. It is apparent that 47.4 per cent of the cancers were diagnosable at an early stage by digital examination and more than half were probably evident to sigmoidoscopic study. It is worthy of emphasis[7] that digital examination of the lower bowel remains the most important and, in view of its simplicity, the most neglected method of diagnosis of cancer of the colon and rectum. It is evident that the mortality rates are the highest and the five year survival rates among the lowest in cancer of the hepatic and splenic flexures. The delay of early diagnosis in these flexures resulting from errors in physical and roentgen-ray examinations caused by rotation of the bowel under the overhanging thoracic cage is well recognized. Survival rates in the descending colon are poor, also. However, it is our impression that the surgeon is apt to carry out a restricted resection in these regions because of the difficulties of maintaining adequate blood supply to viable bowel.

In the radical excision of the rectum, the blood supply is of importance only to the proximal colostomy, and here there is a creditable five year survival rate and a reasonably low mortality. In our opinion, the surgeon should first endeavor to remove all malignant tissue with a wide protective resection of lymph-bearing areas, regardless of the vascular pattern to the bowel. After the cancer is excised is the time to locate viable bowel for anastomosis or colostomy. In hepatic flexure lesions the ascending colon should often be included in the resection, with removal of the transverse colon if it be necessary to sacrifice the midcolic artery with anastomosis of the terminal ileum to the descending colon. In the radical removal of a splenic flexure lesion, the midcolic and left colic arteries may be divided, necessitating anastomosis of the sigmoid to the right colon. We have performed combined abdominoperineal resections of the rectosigmoid with division of the inferior mesenteric artery at its origin from the aorta, including the descending colon in the resection and mobilizing the splenic flexure as a colostomy, in order to remove metastatic glands. Only by such an aggressive approach can the radical cure of cancer be extended. Exteriorization procedures of the hepatic and splenic flexures and of the descending colon do not lend themselves as a rule to such radical measures, and this may partly account for the less favorable results obtained in these locations.

CONCLUSIONS

Certain features of the study warrant further emphasis. It appears that the size of the lesion, the location of the cancer in the colon, the patient's statement of duration of symptoms before resection, the presence of obstruction, and the age of the patient per se have little influence on prognosis in this series of cases.

It is our opinion after a review of these 554 cases, which cover a twenty-five year period, that the most important factors in the cure of cancer of the colon and rectum are (1) the early diagnosis of the neoplasm, (2) the grade of the lesion, (3) the extent of the cancer, and (4) the nature of the operative procedure prompted by an aggressive and radical surgical approach.

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Scott and White Clinic.

ABSTRACT OF DISCUSSION

DR. HUGH C. WELCH, Houston: Drs. Brindley and White have given an excellent analysis of cancer of the colon and rectum with results from the treatment at Scott and White Clinic. It is noticeable that the results obtained by this clinic, which draws on a large variety and selection of cases, are comparable to those reported from other large clinics. The essayists reported a 62 per cent resectability rate over a twenty-five year period. By education of the public and new diagnostic measures it is now possible to treat these patients early enough to increase the five year cures. Perhaps figures for recent years will show a higher resectability rate than the excellent one reported.

Although this report did not include palliative resections, I feel that to give these patients added years with less discomfort we must continue to attack this group with vigor.

Physicians all know that some of these lesions, particularly of the lower colon, are slow in growing and slow in spreading. Patients who are left with the lesions and with a colostomy have a dual problem and neither is life prolonged nor pain relieved.

The Scott and White Clinic must have excellent methods in following cases. Drs. Brindley and White reported 99.1 per cent follow-up. It is true that follow-ups are more satisfactory with private patients than with charity patients, but even so, it is almost impossible to secure this excellent figure in private institutions.

I agree that the rate of cure of cancer is related to the early diagnosis of the lesion. Nothing new has been added in recent years to aid in the diagnosis of cancer of the colon. The advance has been made through education of the public and of the medical profession in using the procedures already at hand. It is an established fact that 75 per cent of all colon cancers can be felt with the examining finger. Another 10 per cent of the colon cancers can be diagnosed with the proctoscope. To improve on the rate of cures would require routine sigmoidoscopic examinations as an office procedure. The general practitioner would be sending patients to the surgeon several months earlier and the hope of giving them permanent cures would be enhanced. When the cancer is far advanced, the physician can make the diagnosis from the patient's symptoms, but by that time radical procedures have to be instigated. I have several patients living after five years who were practically asymtomatic but sigmoidoscopic examinations revealed an innocent looking lesion that proved to be a low grade adenocarcinoma. These lesions were destroyed by fulgration in the office.

In our clinic at Hermann Hospital it has appeared that roentgen-ray and radium therapy of preoperative and postoperative lesions or metastases has not prolonged life and it is almost a discarded procedure. It is almost limited to squamous cell carcinoma. The essayists state that the nature of the operative procedure is of paramount importance in the cure of cancer of the colon and rectum. I firmly agree. This is true in the surgical attack of cancer anywhere in the body. Surgeons are at present going through new, recommended procedures for this disease, but until improvement in the present survival figures is obtained we are not justified in lessening our radical attack in order to do away with an abdominal anus. Patients, when properly instructed, do not object to a colostomy as a permanent anus.

I would like to encourage more standardized methods by all surgeons so that we might better evaluate the type of operation to be employed, namely, accurate measurements of growths from the anal verge, grading of tumors, careful search for involved nodes preoperatively and postoperatively, type of operative procedure used, and a carefully controlled comparison between the survival rates of each procedure.

THE PATHOLOGIST'S RESPONSIBILITY IN DIAGNOSIS AND TREATMENT OF CANCER

LAUREN V. ACKERMAN, M.D., St. Louis, Missouri

IN the past the pathologist usually was relegated to some obscure, small, darkened corner of the hospital. He usually was difficult to find and often was surrounded by aging odoriferous specimens in museum jars. When surgical specimens were submitted to him, a diagnosis often was made without the pertinent aid of the patient's history. He frequently made dogmatic statements and did not appreciate that at the other end of his diagnosis was a patient, the patient's family, and a responsible surgeon. Today the pathologist has come out of the cellar. His laboratory is situated close to the operating room and is available to the clinician.

The clinician who deals with a tumor must to some extent be a biologist, an anatomist, and a pathologist. Above all he must have a broad knowledge of the clinical evolution of the type of tumor with which he is dealing. Physicians in all branches of medicine should carefully discuss their cases with the pathologist. They must give all the clinical data to the pathologist, for even then with a careful gross and microscopic examination it is often difficult to make a diagnosis. The pathologist in turn should have had a background of clinical medicine before entering the field of pathology, for only after working on the wards can be appreciate the internists' problems.

From the Department of Surgical Pathology, Washington University School of Medicine.

Read before a general meeting, State Medical Association of Texas, Annual Session, San Antonio, May 3, 1949.

RELATIONSHIP OF PATHOLOGIST TO OTHER PHYSICIANS

The clinician may assume that the pathologist is a Dunninger and can figure out in retrospect the clinical history from examination of the specimen. Although in some instances the pathologist can do this and finds it fascinating as an intellectual pastime, as a practical procedure it is not particularly helpful to the patient.

The age of the patient is important and should always be given. For instance, a specimen from the skin may show the microscopic characteristics of a malignant melanoma, but if the patient is in the prepuberal age group, the pathologist knows that the tumor usually behaves as a benign rather than as a malignant neoplasm.[1, 20] In a child a hemangioma may appear to invade the deeper tissues and may be classified by the unwary pathologist who does not have the patient's age as a malignant vascular tumor.

In the autopsy room the pathologist has certain responsibilities in the field of tumor pathology. His job is not simply to report that the patient had a carcinoma with metastases to certain organs. The pa-

tient's doctor probably already has most of this information, and the vagaries of metastasis do not interest him unless they have clinical implications. If the patient had a carcinoma of the esophagus and died after resection, the physician wishes to know not only the cause of death but also whether residual carcinoma was present. This may mean sectioning twenty or thirty lymph nodes, but if tumor is present in one of these nodes, it indicates the operation was really an attempt at palliation rather than a cure. In other instances the pathologist may be able to demonstrate errors in surgical technique which can be remedied in the future.

The pathologist may be helpful to the radiotherapist by determining the effect of irradiation on normal tissue and at times by explaining the causes for failure of therapy. Regato and I have been conducting a study in cases of carcinoma of the cervix in the hope of determining the causes of irradiation failure. In

TABLE 1.—*Order of Occurrence of Cancer of Various Sites, Both Sexes Combined.**
New York State, Exclusive of New York City, 1942-1944

Frequency		Mortality	
Site	Rate per 100,000 population	Site	Rate per 100,000 population
Breast	30.3	Stomach	20.4
Skin	24.5	Intestine	19.9
Stomach	22.3	Breast	17.4
Intestine	22.0	Lung	9.1
Cervix	14.9	Cervix	9.0
Rectum	11.7	Rectum	8.9
Prostate	11.6	Prostate	8.1

*Courtesy of Dr. Morton L. Levin, State of New York Department of Health, Bureau of Cancer Control, Albany.

many instances innumerable sections of the pelvis in the field of irradiation revealed no tumor and other sections taken outside the field showed carcinoma, demonstrating that irradiation failed not because the tumor was not locally curable but because the neoplasm already was present outside the field of irradiation when therapy was instituted. Many other problems of a similar nature can be solved by the pathologist working in conjunction with the radiotherapist.

CANCER STATISTICS

It is the responsibility of the pathologist to know something about cancer statistics, for on such knowledge depends the evaluation of survival and cure rates. Statistics should be studied to undertsand better the life history of the various cancers, and a thorough knowledge of the figures helps the clinician in correctly evaluating the enthusiastic reports which continuously pour into the various medical journals.

Usually the statistics on cancer are associated with deceased patients rather than the frequency of the disease. Cramer[3] has stated that there are two kinds of statistics: for morticians and for clinicians. Table 1 by Levin[12] illustrates the differences in the mortality and frequency of cancer.

This difference in frequency is further illustrated in figure 1 and table 2, which demonstrate that cancer of the breast in women is the single most frequent cancer after the age of 35 and is also the commonest form of cancer as it occurs in the living patient. Table 2 illustrates that the age and sex of the patient should be considered before any diagnosis is made.

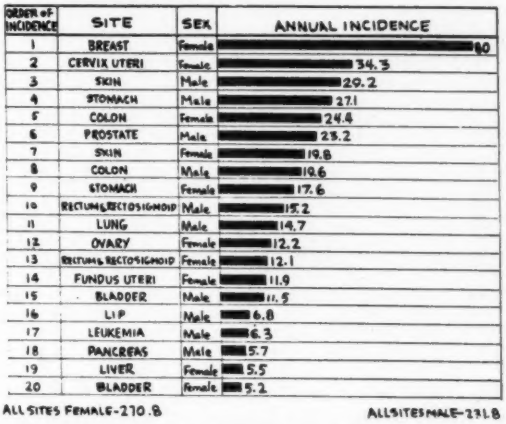

FIG. 1. A graph showing the average annual incidence rates of cancer per 100,000 population in New York State, exclusive of New York City, from 1942 to 1944. Note the high frequency of breast carcinoma. (Courtesy of Dr. Morton L. Levin, State of New York Department of Health, Bureau of Cancer Control, Albany.)

For instance, if a woman of 50 has a single painless lump in her breast, the diagnosis will be influenced by the knowledge that cancer of the breast is not only the most common cancer at that age, but that after 50 the chances of the lump being cancer are about 85 to 15.[3] The graph by Daland (fig. 2) indicates how many patients will survive in untreated breast carcinoma. This curve demonstrates that whoever treats breast carcinoma must better the figures shown. Note

TABLE 2.—*Most Frequent Sites of Cancer in Women at Various Ages.*
Order of Occurrence

Age in years	1	2	3	4	5
30-34	Cervix	Breast	Ovary	Skin	Fundus uteri
35-39	Breast	Cervix	Ovary	Colon	Skin
40-44	Breast	Cervix	Ovary	Colon	Fundus uteri Skin
45-49	Breast	Cervix	Colon	Ovary	Fundus uteri Skin
50-54	Breast	Cervix	Colon	Ovary	Fundus uteri Rectum
55-59	Breast	Cervix	Colon	Ovary	Fundus uteri Stomach
60-64	Breast	Colon	Cervix	Fundus uteri	Skin Rectum
65-69	Breast	Colon	Stomach	Skin	Stomach Cervix
70-74	Breast	Colon	Stomach	Skin	Fundus uteri Cervix
75-79	Breast	Colon	Stomach	Skin	Fundus uteri Cervix
80-84	Breast	Colon	Stomach	Skin	Fundus uteri Rectum
85+	Breast	Colon	Skin	Stomach	Fundus uteri Liver

that 22 per cent of patients with untreated breast carcinoma are still alive at the end of five years.

Furthermore, malignant tumors of the testicle are the most common neoplasm in men in the age group from 25 to 29 years. Therefore, if a man of that age group has a tumor in the testicle, the chances are

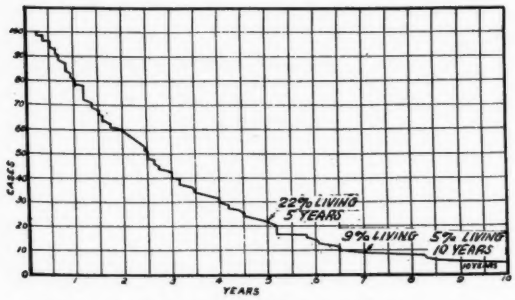

FIG. 2. A graph showing the period of survival after onset of the disease in 100 untreated cases of cancer. [After Daland, E. M.: Untreated Cancer of Breast, Surg., Gynec. & Obst. *44*:264-268 (Jan.) 1927.]

that it will be cancer. This observation has been well supported by the Army Medical Museum, which now has more than 1,000 tumors of the testicle discovered in the ten million or more men who were in the Army.

Given a group of patients of a certain sex and age, it is also important to realize what the expected yield of cancer cases may be. For instance, several surveys have been made in an effort to find early cancer of the stomach; the accepted procedure has been to examine with the fluoroscope a group of persons, usually men older than 50 years. Dailey[4] examined 500 men past 50 and did not find a single case of cancer; in more than 3,000 examinations Swenson[19] found only 3 cases. Because this method of examination is obviously expensive and time-consuming, it does not seem worth while for a good radiologist to expend his efforts to find so few cases. Moreover, the diagram by Levin demonstrates that Swenson's and Dailey's findings are about the expected yield (fig. 3).

Rigler[18] has gone a step further in searching for early cancers by selecting a group in which changes in the stomach which might predispose to cancer were already present. This approach seems more logical and might be worth while if facilities were available to examine at appropriate time intervals groups of patients with conditions such as atrophic gastritis, pernicious anemia, achlorhydria, hypochlorhydria, and polyposis. Rigler has already demonstrated that repeated examinations of patients with these conditions yield an appreciable number of cancers, but even this method is expensive and time-consuming. Recently in 544 symptomless persons past the age of 50 whose gastric contents showed either achlorhydria or free hydrochloric acid of less than 30 units, 3 carcinomas and 19 apparently benign polypi were noted on routine roentgen examination.[18]

PREPARATION OF SPECIMEN

The clinician can help the pathologist arrive at a more accurate diagnosis by selecting with great care the area from which the specimen for biopsy is taken, for the pathologist can report on only the tissue he receives. It is best to include normal as well as ab-

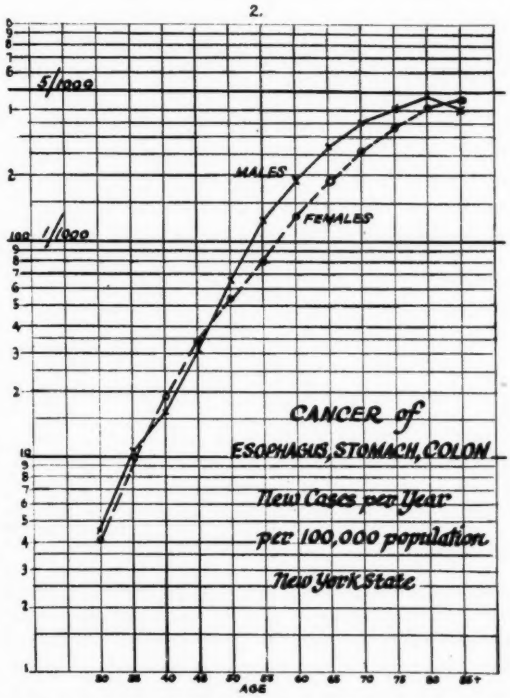

FIG. 3. A graph showing new cases of cancer of the esophagus, stomach, and colon per 100,000 population in New York State. Note that the number of cases of gastrointestinal cancer remains below 1 per 1,000 population until the upper age groups are reached. (Courtesy of Dr. Morton L. Levin, State of New York Department of Health, Bureau of Cancer Control, Albany.)

normal tissue, particularly of skin and oral cavity specimens.

Tissues obtained in the operating room should be placed immediately in a suitable fixative solution (10 per cent formalin or Bouin's solution) because if they are left in the air and under a strong light, it is often impossible to prepare them properly for sectioning and staining. The cautery chars and distorts tissue, and therefore preferably the sharp blade of the scalpel should be used to obtain tissue specimens.

Aspiration biopsy is a useful adjunct to other methods of biopsy when properly done.[15] Its use, however, should be restricted to nonulcerated lesions, partic-

ularly in the evaluation of lymph nodes, soft tissue masses, and prostate, and occasionally bone. The plug of material obtained should be sectioned like any other piece of tissue, not smeared on a slide. Aspiration biopsy specimens differ from biopsy specimens obtained by other methods only in size inasmuch as the architectural pattern is maintained.

I have received specimens in witch hazel, Listerine, plain water, and unidentified liquids. Even when the proper fixative solution is used, if the specimen is packed into a bottle which is too small or without sufficient solution, the specimen is rendered unsatisfactory for proper examination.

The exact location of each tumor should be stated. If it is known that a tumor arises from the skin of the cheek, the pathologist knows it can be classified as a basal cell carcinoma and cured simply by excision or irradiation. On the other hand, a salivary gland tumor arising from the buccal mucosa may have a similar microscopic pattern, but its clinical evolution, prognosis, and treatment would be entirely different. Moreover, the location of a tumor may also give a hint as to its nature. Previous treatment, either surgical or radiotherapeutic, may alter the evolution and microscopic pattern of the tumor.

CYTOLOGIC DIAGNOSIS

The Papanicolau method of staining sputum, urine, gastric contents, and cervical secretions recently has been widely publicized, not only in scientific journals but also in lay magazines. The method is best used in those cases in which clinical signs and laboratory findings are suggestive of disease, especially in the lung, kidney, and stomach. It has probably proved to be most useful in the lung (fig. 4).[10, 13, 24] Occasionally because of squamous metaplasia of the lining epithelium of the bronchi, which is the result of such divergent causes as organizing pneumonia, bronchiectasis, or tuberculosis, a lung has been removed because it was thought to contain carcinoma (fig. 5). The case in figure 5 demonstrates that it is not wise to rely completely on the observation of suggestive cells in the sputum or bronchial washings. This cytologic test remains only one factor in the diagnosis and will in time assume its proper value in relation to other diagnostic means such as clinical, bronchoscopic, and radiologic observations. If the sputum is supposedly

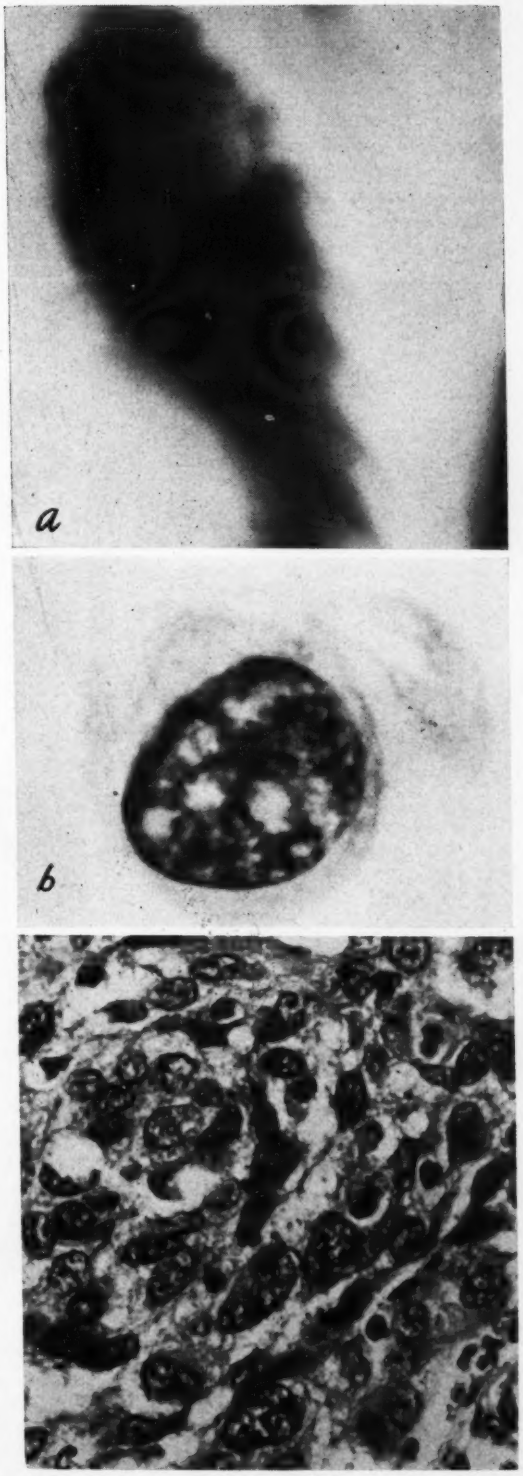

FIG. 4. During a mass radiographic survey a lesion was discovered in a 40 year old man without symptoms. A tomograph *(a)* showed a poorly defined shadow in the upper lobe of the left lung with central cavitation. The large cell with the prominent nucleoli from the bronchial washings *(b)* was thought to be neoplastic. At exploratory thoracotomy a tumor was felt in the upper lobe of the left lung and a pneumonectomy was done. A 3 cm. tumor with central cavitation was discovered. The microphotograph *(c)* shows a rather anaplastic tumor. The regional lymph nodes were negative.

positive for cancer cells and the clinical and radiologic findings do not support the diagnosis of cancer, then every effort should be directed to obtain a positive diagnosis by some other method. At the time of exploratory thoracotomy the diagnosis often can be resolved by frozen sections.

In examining gastric contents a good many diagnoses of carcinoma of the stomach are missed (25 per cent), but patients with clinical symptoms and negative roentgenograms of the stomach who present a positive gastric smear rarely may be discovered. A benign or inflammatory lesion of the stomach is usually correctly appraised with the smear.[7]

Examination of the urine for carcinoma of the kidney is difficult. However, the diagnosis in some of these patients who present suggestive clinical and radiographic findings will be resolved by the smear technique.

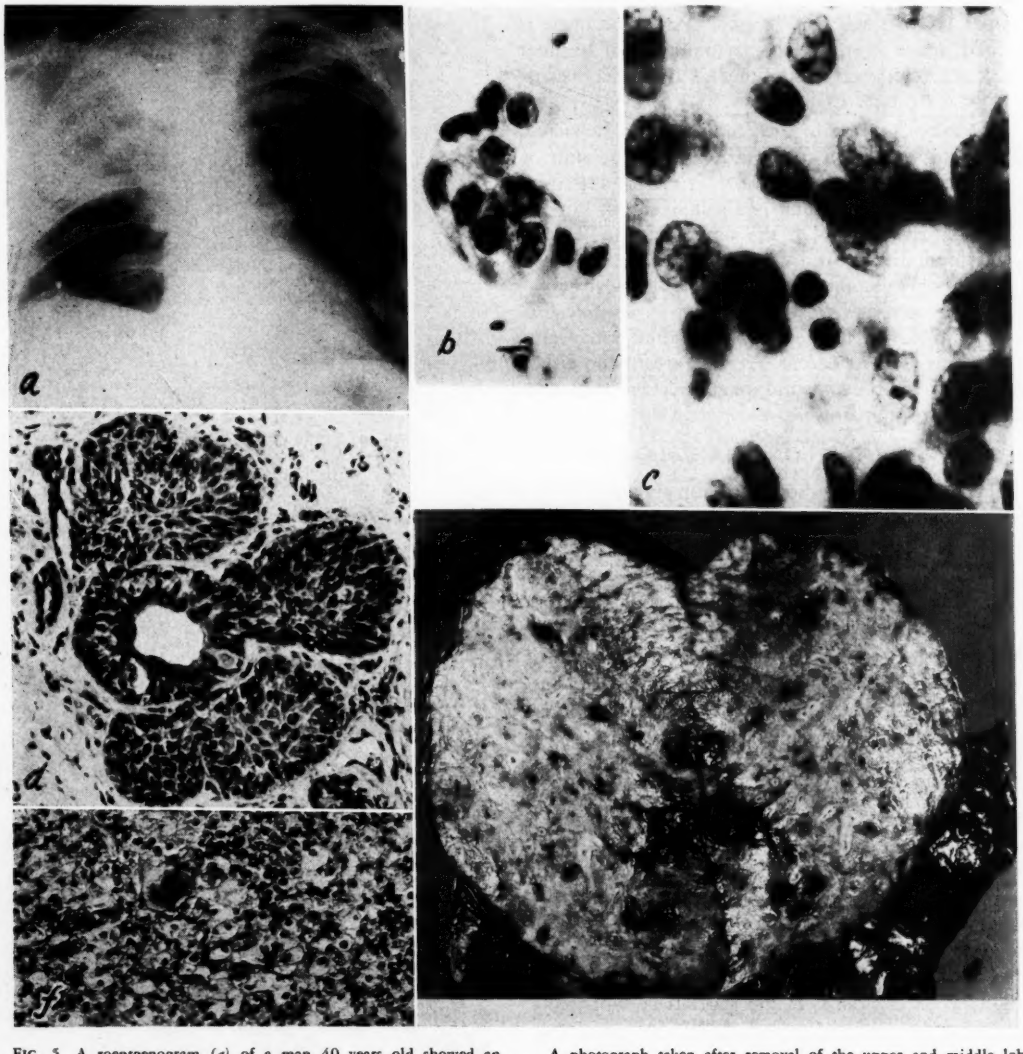

FIG. 5. A roentgenogram (*a*) of a man 40 years old showed an opaque shadow in the upper lobe of the right lung. The lower lobe had been removed previously for bronchiectasis. A bronchoscopy was negative. Tumor cells were found in the sputum. In one microphotograph (*b*) note the variation in size and shape of the cells with prominent nucleoli. Another microphotograph (*c*) depicted fairly uniform cells with fine nucleoli. One of them showed a single mitosis which was believed to be the result of squamous metaplasia. A third microphotograph (*d*) demonstrated a zone of squamous metaplasia found in one of the major bronchi.

A photograph taken after removal of the upper and middle lobes of the right lung showed a well delineated mass (*e*) which proved on microscopic examination (*f*) to be lipoid pneumonia, with fat filling the macrophages. No cancer was found but areas of squamous metaplasia were discovered. It is probable that cells considered to be cancer probably came from an area such as the one shown in (*f*).

(Cytologic studies were made possible by funds from the U. S. Public Health Service.)

The vaginal and cervical smear method is an accurate method of discovering some early carcinomas of the cervix. It should be recalled, however, that in a series of 200 to 500 patients without symptoms, it can be expected that only 1 case will be found.[11] In other words, if a pathologist working with a technician examined twenty to forty smears per day (two smears per case), six smears per hour, and worked a forty hour week, he could expect to find between 5 and 25 cases a year; the lower figure is probably more nearly correct. Even with expert technicians screening the slides, the cost of finding 1 case would be several thousand dollars. Furthermore, a negative vaginal smear means only that the smear examined does not show carcinoma, and the patient still may have disease. Although the smear technique is accurate for proved cervical lesions, there is at least a 20 per cent error in proved carcinoma of the endometrium.

It must be remembered, as Lombard and his coworkers stated, that "only in exceptional cases does the smear give information unobtainable by clinical examination and biopsy."[11] In Lombard's entire group there were only 5 cases of cancer in which the initial biopsy was negative and the smear positive. The final statement is the crux of the Lombard paper: "The technique is more likely to lower cancer mortality because it has made a large number of physicians aware of the insignificance of the signs and symptoms that may be associated with early carcinoma of the uterus than because of the number of early cases it discloses."

In the cytologic diagnosis of cancer, fundamental training of personnel is necessary; the work should always be under the supervision of a pathologist, and technicians should never have the responsibility of saying that a patient has cancer. So-called cancer detection centers do not always abide by these principles. Furthermore, to these detection centers come persons without signs or symptoms of cancer, and mass testing is both time-consuming and expensive.[22] Newell[16] has emphasized that it costs from $7,000 to $10,000 to find 1 case of cancer in the detection centers. It is also apparent that early cancers will be overlooked in these clinics unless the personnel doing the examining is extremely well trained.

Instead of depending on cancer detection centers it would seem more logical to increase the knowledge of the physician and medical student so that they would be better qualified to make a diagnosis of cancer when a given patient appears for examination in their office. It would seem warranted to set up postgraduate courses in the various fields of cancer so that the physician would understand the early symptomatology and the limitations and uses of various diagnostic tests. In other words, every doctor's office should be his own cancer detection center.

GRADING OF TUMORS

The pathologist who is concerned with the diagnosis of tumors is often questioned regarding the value of grading tumors. In this regard Broders[2] has emphasized the importance of grading. In certain types of neoplasm, however, grading is more of intellectual than practical significance; this applies in carcinoma of the breast. It is true that a few carcinomas of the breasts which are extremely undifferentiated grow rapidly and metastasize early in their evolution. It is also true that a few well differentiated carcinomas with a long history remain confined to the breast and metastasize reluctantly. Thus, in the majority of instances grading of the breast tumors is of little or no help. Other factors such as metastases to the axillary lymph nodes, satellite skin nodules, and skin edema have been shown to be of much greater importance.

It has been demonstrated by Steiner[21] that the grading of carcinoma of the stomach is of little importance, for in a group of 30 patients surviving more than five years, many of the lesions would have been classified with the higher grades. Epidermoid carcinomas as a group may tend to be more undifferentiated in one organ than in another. Unfortunately, most carcinomas of the esophagus are of the higher grade which is probably one of the reasons why they frequently spread to regional nodes and more distant areas. On the other hand, carcinomas of the lip tend to be well differentiated, grow slowly, remain localized, and often involve only the regional lymph nodes.[17]

Sweeping conclusions on the grading of a single tumor of the squamous variety are not justified although general statements can be made regarding groups of squamous carcinomas which have been graded. Moreover, well differentiated neoplasms do not necessarily behave in a benign fashion; I have seen well differentiated leiomyomas of the soft tissue and myometrium metastasize. It has also been generally recognized that the granulosa cell tumors of the ovary often metastasize, although the microscopic pattern is regular and the individual cells are often free from mitotic activity. A poorly differentiated, small tumor restricted to the mucosal lining of an organ such as the uterus can be cured by surgical extirpation. Conversely, a well differentiated tumor may spread beyond the confines of an organ and be completely incurable. In other words, grading is only one of the factors for estimating the quality of a given tumor. The tendency has been to give grading more significance than it probably deserves.

FROZEN SECTION EXAMINATION

The indications for performing a frozen section examination are relatively few. The better trained the surgeon is in gross pathology, the fewer times the pathologist will be called to do this procedure. Also, the better a case is worked up before surgery, the fewer frozen sections will be necessary. If the history and laboratory data are inadequate, the patient is quickly removed to the operating room, and a large incision is made, the surgeon may have to call the pathologist to help him out of the dilemma in which he finds himself. The frozen section may be confusing, and if the pathologist is not careful, he may be forced into making a diagnosis not warranted by the pathologic picture. Under these circumstances, it is wise for the pathologist to adopt a firm, conservative attitude.

The freezing of bits of endometrium is not practical. With breast tissue, however, the pathologist may be helpful in diagnosing the more confusing lesions such as fat necrosis, sclerosing adenosis, and circumscribed carcinomas. Inflammation in epidermoid carcinomas of the skin may make it impossible to determine the limits of the tumor, in which case the pathologist may help in determining how radical to make the operation. In abdominal operations the pathologist may be helpful in diagnosing a carcinoma of the pancreas and in determining whether a perforated ulcer of the stomach is benign or malignant. Occasionally by the biopsy of a lymph node distant from the primary tumor, a major surgical procedure can be obviated. The examination of wedge-shaped debatable lesions of the lung may be the decisive factor in determining whether pneumonectomy is indicated. The pathologist when in doubt must never hesitate to say that he does not know the diagnosis.

EVOLUTION OF TUMORS

Most neoplasms have a certain distinctive evolution and this life history is probably more important in understanding them than any other factor. Surgeons, pathologists, and internists often make unwarranted assumptions because they see a given tumor in only one phase of its evolution. Tumors of the salivary gland behave in a rather characteristic fashion; the so-called benign mixed tumor grows slowly and often recurs years after the primary surgery. Under the microscope these tumors usually look much worse than they are. Whether or not a given salivary gland tumor will recur will depend more frequently on the type of surgical procedure than on the microscopic appearance of the tumor.

Five year survival figures on benign mixed tumors have only limited significance because these neoplasms notoriously recur; the longer an individual series is followed, the higher the percentage of recurrences.[14] Recurrences usually mimic the primary neoplasm with considerable accuracy and may appear as much as fifty years after removal. Therefore, patients with this type of neoplasm should be followed indefinitely.

On the other hand, in a squamous carcinoma of the lower lip with no lymphadenopathy at the time of treatment by irradiation or surgery, pathologists know from the evolution of this type of tumor that if no evidence of lymph node involvement exists at the end of a year, the patient probably will never develop a regional node metastases. If he remains well for at least three years, the chances are approximately 100 per cent that he will remain cured.

The basic origin of a tumor is probably the most important factor in determining its radiosensitivity. The malignant melanoma has a neuroectodermal origin and is truly radioresistant. I have seen several cases in which the pathologic diagnosis was incorrect and the radiotherapist treated the lesions with a large amount of irradiation. The skin around the tumor showed extensive changes but the tumor itself continued to grow vigorously.

A five year cure of a malignant melanoma is only of relative importance. I have seen at least 5 cases in which distant metastases appeared after a five year latency. This course occurs especially with melanomas of the skin and eye.

In carcinoma of the breast and salivary glands, recurrences may appear even after twenty years. On the other hand, if a patient with a Wilms' tumor survives without evidence of disease for one year after operation, the chances are 95 per cent that he is cured. The significant survival period after a patient has been treated for a malignant neoplasm will therefore depend entirely on the type of tumor treated.

SPREAD OF TUMORS

The spread of tumors including local extension as well as distant metastases is all-important to the clinician in evaluating treatment and in understanding the progress of the disease. There are certain time-honored fallacies still seen in the literature such as that carcinomas are spread by lymphatic vessels and sarcomas by blood vessels. These statements are only partially true inasmuch as carcinomas frequently spread by blood vessels, and it is not rare for certain types of sarcomas to spread by the lymphatic vessels. It is more important for the surgeon to have a detailed knowledge of the lymphatic system than any other anatomic data in planning operative procedures on patients with carcinoma. For instance, in carcinomas of the vulva it is of utmost importance to realize that there is a widespread intercommunication of lymphatic vessels in the subcutaneous tissues between the two inguinal lymph node areas and that therefore when a

vulvectomy is done a bilateral inguinal dissection should also be done.

The knowledge of the relative completeness with which a lymph node dissection may be carried out in different areas is helpful in evaluating future prognosis. Inguinal lymph node dissection in most instances is not too complete a procedure because the superficial lymph nodes have communications with the deeper and more distant nodes, and it is not rare for a tumor to be present beyond the areas of dissection. On the other hand, axillary and neck dissections are usually adequate, for all nodes in both of these areas can be cleanly dissected.

Tumors usually spread through the lymphatic system by emboli rather than by permeation. For instance, a carcinoma originating in the breast reaches the axillary lymph nodes by embolic phenomena, and the first microscopic sign is a small mass of tumor cells in the peripheral sinuses. As the process continues, often lymph nodes begin to fill up with tumor, and after a variable period of time all lymph nodes in the area will be well filled with tumor. Only then does the tumor spread beyond the confines of the lymph nodes in a retrograde fashion. Permeation of lymphatic vessels occurs only after blockage of normal lymphatic pathways, and usually when this phenomenon is present, the disease is far advanced. There are numerous pathways besides the conventional ones by which tumors of the breast may become disseminated.

Figures quoted on five year survivals for carcinoma of the breast without axillary lymph node involvement are as high as 75 to 85 per cent. What happens to the other 15 to 25 per cent may be accounted for in either of two ways: (1) The axilla was not completely dissected or microscopically examined and was reported negative when it was really positive.[26] (2) If the axilla was completely dissected, the tumor may have spread to more distant areas by other pathways. If a carcinoma of the breast begins in the inner quadrant, it can spread directly to supraclavicular lymph nodes or to the anterior mediastinal lymph nodes.[9] At times the first symptom of carcinoma of the breast may be pain in the back resulting from metastatic disease in a dorsal vertebra which apparently reached that area through the vertebral vein plexus. Tumors may also involve the veins in the perinodal tissues.

Carcinoma spreads frequently by the venous system. With a carcinoma of the large bowel, lymphadenopathy is sometimes totally absent and yet there may be evidence of vein invasion. In a carcinoma of the rectum this invasion has considerable significance, for it frequently means that tumor is residing in more distant locations such as the liver, lung, or bone. Therefore, it is important that the pathologist pay particular attention to the demonstration of vein invasion, particularly as it concerns tumors of the large bowel, thyroid, and kidney.

In the kidney specimen the determination of vein invasion is the single most important factor in determining the prognosis, whether the neoplasm be a Wilms' tumor or a carcinoma.[13] Vein invasion may be present in the main veins of the hilum of the kidneys or may involve the veins beyond the capsule of the kidney where the tumor has not grown by direct extension. The microscopic pattern of a kidney tumor is not important in determining the prognosis. Sarcomas, it is true, do metastasize by the blood stream, but certain sarcomas spread by the lymphatic system.

Haagensen and Stout[8] have emphasized the frequency of metastases of the synovial sarcomas to regional lymph nodes, and Warren and Sommers[23] have pointed out that fibrosarcomas may metastasize to regional lymph nodes in a 5 to 15 percentage. This metastasis to regional lymph nodes has led Haagensen and Stout[8] to suggest that there must be serious consideration of radical groin dissection in synovial sarcomas of the lower extremity. The local extension of tumors is also important in planning surgery. Many surgeons in operating on carcinomas of the esophagus, stomach, or bronchus do not appreciate the frequent submucosal extension of these tumors. This extension may not be perceived by the examining fingers, and it is not rare for the surgeon to cut across these tumors at operation. The spread of a given tumor is dependent upon many factors: its location, its individual biologic behavior, and the availability of lymphatic vessels and veins.

PATHOLOGIST'S LIMITATIONS

The pathologist must admit freely his limitations in interpretation of microscopic slides. He can interpret, of course, only what he receives and if the clinician does not submit to him a representative biopsy specimen, the correct diagnosis may be missed. Moreover, as tumors grow and become more undifferentiated, it becomes increasingly difficult to identify them. A malignant melanoma illustrates the great differences in the microscopic pattern which a tumor of the same histogenesis can assume, and at times identification of the tumor must be made more on a basis of inference than on the microscopic picture. In other words, in a woman of 40 or 50 a lesion in which a lymph node in the axilla is replaced by an epithelial tumor is compatible with metastatic carcinoma, with the most probable site of origin being the breast. However, this diagnosis is made only on the basis of speculation and probability rather than the actuality of what is seen through the microscope. Of many tumors it is impossible to say more than that they are of epithelial or mesodermal origin. There are even some in which all that can be said is that they are benign or malignant tumors and cannot be classified

much further. Any pathologist who is extremely dogmatic in his diagnosis of a tumor probably does not know too much about neoplasms in which the chances of error are great. Special staining procedures to identify and bring out various substances such as reticulin, collagen, fat, neurites, and hemosiderin may be helpful in the identification of some neoplasms.

CONCLUSION

The greatest diagnostician of all is the passage of time. It is mandatory, therefore, that any tumor clinic have as nearly a perfect follow-up system as possible. Upon this follow-up will depend a great deal of the knowledge of tumors. A patient with a tumor thought to be benign from a microscopic standpoint may show clinical evidence of metastases five or ten years after its removal. Another tumor which was thought to be inoperable because of the anaplastic microscopic pattern may prove to have an entirely different biologic behavior. Therefore, it is important that the pathologist assume a certain amount of humility when he is making a diagnosis of a benign or malignant tumor.

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PUBLIC HEALTH CANCER GRANTS

The Public Health Service recently has announced several grants to be used in cancer control in Texas. Of twenty-one grants totaling $352,800, Dr. William O. Russell was awarded $26,300 for developing a tumor registry at the M. D. Anderson Hospital for Cancer Research, Houston.

Announcement was also made of allocations totaling $640,541 to improve cancer teaching in medical schools. With initial grants to the University of Texas Medical Branch, Galveston, and the University of Pittsburgh School of Medicine, Pittsburgh, Pa., all seventy-nine medical schools in the nation are now participating in the program. The University of Texas Medical Branch received $24,674, and a renewal grant of $25,000 went to the Southwestern Medical School, Dallas.

Blue-Eyed Persons Cancer Susceptible

Blue-eyed persons are more susceptible to cancer caused by exposure to the sun's rays than are brown-eyed persons, a study made by a Santa Monica doctor shows. Dr. A. Fletcher Hall of the Graduate School of Medicine, University of Southern California, states in the April *Archives of Dermatology and Syphilology* that racial stock apparently is an important factor in determining the amount of sunlight to which a person can be exposed safely. One hundred persons with skin cancer were studied.

Certain racial stocks and hereditary complexion patterns in which sunlight is not an important factor in skin carcinogenesis include the Negro and Oriental races, probably the Mexican and Mediterranean, and possibly all homozygous brown-eyed persons, Dr. Hall stated. On the other hand, there are certain racial stocks and hereditary complexion patterns in which sunlight is the most important carcinogenic factor when repeatedly encountered in erythema-producing quantities. These include persons of Irish-Scotch-English ancestry, probably the blue-eyed North Europeans, and possibly all homozygous blue-eyed persons.

New Antibiotic for Bacterial and Virus Disease

A new antibiotic drug, terramycin, after an early clinical trial reported in the May 6 *Journal of the American Medical Association* has been shown to be effective against whooping cough, several kinds of pneumonia, syphilis, gonorrhea, and other diseases. The drug is produced by a newly discovered mold, Streptomyces rimosus, which was isolated from a soil sample. It belongs to the same family that produces streptomycin.

TUMOR SEMINAR

Conducted by

RUPERT A. WILLIS, M.D., London, England*

DR. B. F. STOUT, San Antonio, Chairman: I have the honor of introducing to you a fine gentleman, a top-flight internist, a diplomate of the American Board of Internal Medicine, the Commanding General of Brooke General Hospital, General Arthur R. Gaines.

General Gaines: Dr. Stout, thank you for that kind introduction. As the officer-in-charge, I am glad to welcome you to Brooke General Hospital. I think we have in Brooke General Hospital a fine place: we have equipment, personnel, physical plant, and a wide variety of clinical material, all of which makes for a fine institution. But there is another side to the story of being the officer-in-charge. I find that as is true in most things of life, you have to wait until you are practically of prenecropsy age to attain jobs of this nature, and you don't have long to enjoy them.

I came here February 1 of this year and one of the first things I heard about was the San Antonio Society of Pathologists. It is a small but an aggressive and alert organization. The interest of the members is in pathology. They don't think nearly as much of a Rembrandt or a Goya as of a beautifully stained grade 4 malignancy of the cervix. I have a hunch that the peak of sculpture to them would be the "Dying Gladiator" and they probably wonder why he has waited so long to die. It is a wonderful organization and they help us a great deal. They lend themselves to our work and stimulate our men to great effort in pathology. For a number of years past they have been arranging an annual tumor seminar. This is the sixth. As I said, they are an aggressive unit, and because of their enthusiasm and particularly their ability—that of Dr. Stout especially—they have been able to secure the best list of guest speakers of which I have heard. These tumor seminars have come to be recognized on a national and now on an international basis, and they are attracting wide attention everywhere because they are simply good. The one this year is no exception, I am sure, and I know the meeting today will climax a week of fine activity in pathology. We have visitors from Mexico, Tennessee, New York, California, and Oklahoma, and Dr. Stout assures me that we would have had many more but for the fact that Dr. Willis, the guest speaker, is to travel widely following his tour here. I am sure a lot of pathologists felt they would get an opportunity to hear and to see him later and have deferred making this trip. Again, let me say that I am glad to give you the facilities of Brooke General Hospital for today, and we are happy to have you with us.

Dr. Stout: Thank you, General Gaines. The Commanding General of the Brooke Army Medical Center is here, and while he was not scheduled to speak, I would like to have him stand so that you may see who he is. Major General E. A. Noyes.

It is now my pleasure to call upon an old friend who is known everywhere, strangely enough, by the name of "Frenchy." Why he should be called that, I don't know. He is known as "the Army travelling man." He spends part of his time in Washington, and when he was stationed here he spent part of his time here. Among his many duties he is a consultant to the Atomic Energy Commission. He is also commandant of the Army Medical Department Research and Graduate School in Washington. Last but not least, he is a life member of the San Antonio Society of Pathologists. Col. Elbert DeCoursey:

Colonel DeCoursey: After that introduction I am reminded of that gentleman you recently heard—I think it was Dr. Foord—up in Chicago: after that introduction I am interested to hear what I will say. I am delighted to be here because I have had much stimulation from this San Antonio Society of Pathologists, and also because it is a great pleasure for me to talk about a friend of mine that I met in Washington, D. C., in the early 'forties as chief of the Laboratory Service at Walter Reed General Hospital. After that he went overseas to take care of laboratory facilities in the European Command, was director of the European Command Laboratory, and was laboratory consultant to General Noyes, the Theatre Surgeon of the European Command at that time. He is now chief of the Laboratory Service at Brooke General Hospital, one of your hosts, Lt. Col. Carl Lind.

Colonel Lind: Thank you, Colonel DeCoursey. It is hard to try to fill in for Colonel DeCoursey, but all we can do is try. As long time chief of this Service, he by rights should be doing what I am doing, which

* *Pathologist of the Royal Cancer Hospital and past Sir William H. Collins Professor of Human and Comparative Pathology of the Royal College of Surgeons.*

EDITOR'S NOTE: *The tumor seminar conducted by Dr. Willis in San Antonio on October 29, 1949, was the sixth such annual conference sponsored by the San Antonio Society of Pathologists and the Texas Society of Pathologists in cooperation with the pathologists of Brooke General Hospital. The material for study was supplied by Dr. Willis and the San Antonio and Brooke General Hospital pathologists. Pathologists from throughout Texas and elsewhere attended the seminar and were furnished histories and slides for the cases under consideration. Additional microscopic slides were projected on a screen as each case was discussed by Dr. Willis.*

is handling the administrative and business side of this meeting. It happens to come as part of my duty.

Now I have a real pleasure. I could give quite a laudatory, effusive, and long discussion about Dr. Willis. I have known of his works and I have had the fortune of knowing him. However, may I without elaboration, and possibly even curtailing what I should say, introduce the speaker, Dr. Rupert A. Willis. He is the former Sir William H. Collins professor of pathology of the Royal College of Surgeons and is at present the director of the Department of Pathology at the Royal Cancer Hospital of London. Dr. Willis.

Dr. Willis: Dr. Stout, General Gaines, Colonel Lind, and ladies and gentlemen. It is an almost overwhelming pleasure and privilege to be here today. The hospitality of the San Antonio Society of Pathologists and of the people of Brooke General Hospital has been something outside all my previous experience. I also feel privileged professionally because I have read the accounts of the previous tumor seminars that have been held here and was indeed impressed with this way of disseminating pathologic knowledge. I think this society is doing a top-notch job for Texas and for a much wider audience in presenting interesting and difficult problems in this way. I felt a little diffident in accepting this appointment because of the distinction of the men who had held previous seminars here, and I only hope I shall be able to uphold the high traditions they have established.

Now without further ado I think we should get on with the work. The slides you will see are not to my credit but to the credit of Colonel Lind's department and particularly to the credit of Colonel Milward W. Bayliss, who has put a tremendous amount of capable work into this series. When I went over the slides to check on what I would like illustrated, I discarded scarcely any and I asked for scarcely any additional ones, so you can see that Colonel Lind and his team have almost coincided with my ideas of what should be shown.

I think the best way of presenting these cases will be to take the brief statements of the cases that you have before you and then throw onto the screen the vote as to the diagnosis. That will give you a good idea of the general consensus and the degree of uncertainty about the case and, therefore, the degree to which we may have to discuss it. Having seen the vote, I do not propose to tell you straightaway what my diagnosis is. I shall keep you on tenterhooks until the last moment if I can, but I think as the slides are described my diagnosis probably will emerge. Then I will finish by saying what my diagnosis is and what the reasons are for it, as illustrated in the slides which you will have traversed.

I would like to say that diagnosis is not precise in all cases. It would be surprising if it were so in a series of selected cases of such interest. Some of them are straightforward. We will not waste a great deal of time on those. Others are exceedingly difficult; in fact, I do not think an obviously complete diagnosis can be reached. Some of you clinicians are a bit inclined to regard pathologists as crystal-gazers who have only to glance down a microscope to attach a label to something. Well, Nature does not like labels, and a good many of the labels we attach are very man-made things, so if there seems to be confusion over some of these diagnoses and the names attached, you will have to forgive us. It is not our fault; it is the fault of great Nature herself.

A question regarding these cases should be written and sent up, and it will be dealt with after one of the recesses. Discussion may have to be brief, but I will do my best to answer.

PAPILLOMATOSIS OF BREAST

CASE 1.—Contributed by Dr. D. A. Todd, Nix Hospital Laboratories, San Antonio.

Patient.—33 year old white woman.

Specimen.—Breast.

History.—The patient was first seen June, 1942, at age 27. The left breast contained a small discrete and freely movable tumor. The patient was seen next February, 1944, complaining of pain and burning in both breasts, more pronounced just before menstruation. She had had one child. After delivery both breasts had become "caked." There were now small nodules in both breasts. The patient was seen again March, 1948, for a lump in her left breast near the midline. There were small nodules in both breasts and much straw-colored fluid could be expressed. On October 1, 1948, a subcutaneous simple right mastectomy was performed.

Diagnoses Submitted.—Papilloma (with or without "mastitis"), 30; papillary carcinoma, 5; chronic cystic mastitis, 2; fibroadenoma with intraductal hyperplasia, 2.

Dr. Willis: Thirty people have voted for papilloma, with or without mastitis, and rather fewer for other diagnoses. There is a strong preponderance of opinion for papilloma.

(Lantern slides.) Here is a low power view. You see dilated duct spaces occupied by this obviously papillary type of growth. You see invaginations of the epithelium with connective tissue cores, not so clearly seen here as in the higher power. In the high power view you can appreciate how the connective tissue comes in and then ramifies among these epithelial papillary masses. This is the predominant structure. While we are on this low power view I would like to draw attention to the presence of rather solid bits of epithelium with small cavities, a type of structure that we in England call cribriform structure.

This other slide illustrates similar changes, but the smaller ducts and ductules are surrounded by ob-

viously epithelial linings. This epithelium is in many places banked up and has a tendency to papillary ingrowth here and there. I think you will all agree, and most of you have agreed in the vote, that there is nothing obviously malignant about any of this. This is all a hyperplastic, proliferative process with predominant papillary pattern. We can call it legitimately a papillomatous change. The interest of it is, of course, that it is widespread, that it extends over both breasts, and that it is almost universal.

Here is a preparation by the Masson method. I do not know that this was essential to display anything fresh, but it is a point of interest to see the contrast between the epithelial elements and the connective tissue elements, which stain blue by the Masson method. You can see a little bit of bluish stained strands here and there among the epithelium, which, of course, is the basis of the papillary pattern of this growth. The pathologist has to be extremely careful in interpreting this kind of solid growth, and I appreciate that these clefts which might be regarded as glandular clefts within a solid mass are in many instances really tangential and side sections of these main cavities. It is a question of the whole thing being a very convoluted and mixed-up mass of the papillary type which is sectioned at different planes.

This is a reticulin preparation which, again, shows the relationship of the connective tissue to the papillary epithelium pattern.

This is a high power view, the particular interest of which is that in the epithelium clothing the papillae there is a connective tissue core, and the epithelium is rather pleomorphic in cytology and has mitotic figures. Probably many of you noticed in examining these slides that where the epithelium was most bulky and banked up, there was a fair number of mitotic figures. It is clear that this epithelial growth is proliferating actively.

This lantern slide is one to which I would draw particular attention because it did not appear in the routine sections that went out. That is not the fault of anybody. It is only that in the original sample sections that were sent to me for my opinion as to whether they should or should not be included in this series, there was a section which contained this type of growth, as well as all the rest that you have seen, and this does not appear in the section that has been sent out as a routine sample. It was only a tiny focus, but I think it is significant. Here is the same kind of duct dilatation with papillary ingrowths of strands of connective tissue with papillary change, but this is very disorderly. I can assure you from an examination of the whole area it was evident that this disorderliness was not just an artefact, not a question of a breaking up mechanically by the section process or anything of that kind, but really a pattern of the tumor in this particular spot. I think you will agree that this is a much more suspicious area. I, myself, would go so far as to say that this is a definite area of intraductal carcinoma. I think that this kind of thing evolves out of what you see here—papillary growths of an active kind, with mitoses—and that eventually it becomes rather disorderly without breaking any limits of duct confines. Eventually, of course, it does break duct confines if it progresses, and it becomes infiltrative. However, careful examination of all the available material failed to show any infiltrative carcinoma in this specimen, and all that I could find of a suspicious nature was this particular area.

You have probably decided what my diagnosis is. It is a widespread papillomatosis of the ducts of both breasts with supervening intraduct carcinoma in at least one small spot. We do not know, of course, what might have been happening elsewhere, but from experience with other cases I am prepared to believe that in other parts of these breasts we might have found similar or even more dangerous-looking tissue. I do not think I need to elaborate on the reasons for that diagnosis.

This type of lesion in my experience is common in the breast. It is not common, of course, to see both breasts universally affected by this kind of papillary proliferation, but in an area of breast that contains a carcinoma, when careful studies are made of all the surrounding breast tissue, it is a common concomitant of carcinoma. If it is a highly differentiated and thoroughly localized process, it is likely to be clinically benign, removable, and not particularly dangerous, and the pathologist is justified in calling it papilloma, but if it is widespread and active, with mitotic figures, and if it shows little patches of this disorderly growth which must be regarded as potential carcinoma, it is indeed a dangerous lesion.

I think one of the great merits of recent pathologic investigations in this country and in Great Britain has been to show the transitions between hyperplasia, papillomatous change, and carcinoma that are obvious in cancerous breasts. The thing evolves. There is no sharp distinction between papilloma on the one hand and carcinoma on the other. It is an evolution that occurs, and we see it in different stages, sometimes all stages in one breast. In these breasts, I think we see all the early stages short of the infiltrative type of growth.

Dr. Asa Beach, San Antonio: Do you think a regional lymph node dissection should be done in this case in view of the early low grade noninvasive carcinoma?

Col. Elbert DeCoursey, Washington, D. C.: Since only a small area of one slide of this case showed carcinoma, would you go so far as to recommend the

radical (complete) operation in this instance or in all cases of widespread papillomatosis?

Dr. C. T. Ashworth, Fort Worth: What type of treatment is recommended for intraductal carcinoma of breast?

Dr. Willis: I think we can take all of these questions together. Of course, I speak as a pathologist, but I have definite views on what ought to be done with cases of this kind. They are not universally orthodox views. I am thoroughly convinced, from the pathologic examination of abnormal breasts and cancerous breasts, that a high proportion of them have a precancerous basis; that is to say, carcinoma does not spring up like a mushroom overnight. I think we can recognize this precancerous basis in what we call cystic hyperplasia and in papilloma formation. Therefore, I think that when we see the sort of lesion present in this case, we have found a dangerous lesion. The clinician who takes the responsibility of delay is taking a grave responsibility. In my opinion the proper treatment is to remove all of that abnormal tissue.

Whether the radical operation should be done or not, I am rather doubtful. I think that in a lesion of this kind in which all the suspicious growth is still confined within the ducts and is still of a fairly high degree of orderly differentiation, the risk of metastasis to the regional lymph nodes is small. It would depend, of course, on the possibility that there may be an undetected spot of infiltrative growth at some point in the breast. If there is no infiltrative growth, there can be no metastasis, and that means that we must examine the amputated material thoroughly. We obviously cannot cut up the whole breast into serial sections, but we can take representative bits from many parts, particularly concentrating attention on suspicious patches, and then when we have reached the conclusion that there is no infiltrative growth present, I think local mastectomy suffices. If there is any doubt, if an investigation discloses an area of beginning infiltration, or if the clinician has done an incomplete removal and there are left behind bits of breast which cause him or his patient anxiety, I think the whole job ought to be completed. This kind of lesion is irreversible and progressive, whatever its end result may be. If the surgeon leaves it, he leaves a breast that is going to be a nuisance to the patient and to him until he does something radical about it. By radical I mean something that gets rid of the lesion. I would say that the proper treatment of this kind of lesion is removal of the breast, the whole breast, and nothing but the breast. If there is any doubt in the pathologist's mind or the clinician's mind with respect to the completeness of the removal, perhaps he had better go ahead and do the whole radical amputation.

Dr. Leo Lowbeer, Tulsa, Okla.: Do you agree with Ewing that about 30 per cent of the Schimmelbusch type of "chronic cystic mastitis" develops into actual carcinoma? If so, how do you explain the characteristic absence of clinical symptoms prior to the development of a carcinoma of the breast, whereas in "chronic cystic mastitis" there is usually a history of months or years of multiple lumps?

Dr. Willis: There are occasional cases of Schimmelbusch's disease (grossly cystic breasts) in which carcinoma develops. It becomes a statistical problem to decide whether or not this proportion is higher than that in the rest of the population. From the pathologist's viewpoint I would say that the proportion is definitely higher than the rest of the population, judging the frequency with which cystic change is seen along with carcinoma. I agree that statistics here are not especially helpful, because who is to define Schimmelbusch's disease? Is one cyst Schimmelbusch's disease, or two cysts, or three cysts, or a honeycomb of cysts? Are they to be big cysts or little cysts? Are they to be the palpable cysts that clinicians feel, or are they to be the multiple, little, impalpable cysts that pathologists see in breasts amputated for carcinoma?

The kind of mammary hyperplasia that is likely to end in carcinoma is probably not the kind that is likely to end in gross cystic change. It seems to me that duct hyperplasia in the breast starts off as a stem process and that it has two alternative end results. It may just pass off into a benign cystic obstructive lesion; it may be localized and have only one or a few cysts; it may be widespread and be the big polycystic breast of the florid Schimmelbusch's disease. Alternatively, it may remain inconspicuous, as regards the cysts, and later become cancerous. The easily diagnosed kind of cystic change in the breast, the clinically diagnosed kind, is not the dangerous kind as pathologists see it.

That, I think, is the basis of the considerable argument that goes on between pathologists and surgeons as to the precancerous potentialities of what they call "chronic mastitis." Many surgeons say that chronic mastitis is a benign process and it has no great dangers attached to it, no more than any other anomaly of the breast. The pathologist says that one frequently sees precancerous cystic hyperplasia in the breast and that a high proportion of cases of carcinoma of the breast have concomitant cystic hyperplastic duct changes. The two opinions seem to be diametrically opposed, whereas in fact they are not really so. I think that the kind of breast which clinicians know to be cystic is not particularly dangerous; and that when we slice up a cancerous breast and find precancerous lesions, it is usually a fine, widespread duct

proliferation with a lot of little cysts which might make the breast generally shotty, rather irregular in consistency, but it might not be at all easy to put a name to clinically. This is the source of the discrepancy. Just where to start calling a cystic breast Schimmelbusch's disease, I do not know.

Dr. A. O. Severance, San Antonio: In your experience, what percentage of intraductal papillomas become malignant? What treatment do you recommend?

Dr. Willis: This again is a question of statistics which is difficult to answer. When I am asked for things in percentages, I always flounder a bit. I would say that all intraduct papillomas have to be treated seriously. If they are solitary, apparently local, and near the nipple, in a big duct, well circumscribed; if you can identify exactly where they are by pressure around the periphery of the areola; and if you can squeeze secretion out at a certain radius, you know just where the thing is. If there is nothing else palpable in the rest of the breast, probably a local treatment is all that is necessary. If (and this is more usual) the papillomatous change is more widespread, if it affects an extensive reach of a duct, or several ducts, or the whole reach of the duct from the nipple up to the periphery, as it sometimes does, or the whole breast or the whole of both breasts, as in this case, I think you must regard that as something requiring radical surgical removal, not necessarily the complete radical mastectomy for cancer, but complete simple mastectomy.

SQUAMOUS CARCINOMA OF ESOPHAGUS

CASE 2.—Contributed by Lt. Col. C. J. Lind, Brooke General Hospital, Fort Sam Houston.

Patient.—67 year old Negro man.

Specimen.—Esophagus.

History.—The patient had progressive dysphagia and a weight loss of approximately 50 pounds during the previous ten months. Esophagectomy revealed a mass projecting into the lumen from the left lateral posterior esophageal wall.

Diagnoses Submitted. — Squamous-cell carcinoma, 16; adenocarcinoma, 9; undifferentiated carcinoma, 3; adenoacanthoma, 4; mucoepithelioma, 1; embryonal carcinoma, 1; metastatic bronchogenic carcinoma, 1.

Dr. Willis: The prevailing opinion here is that this is undoubtedly carcinoma and that it is primary carcinoma rather than metastatic. There is a nearly even balance between carcinoma of glandular origin with squamous metaplasia suggested as the reason for the squamous features, and straight-out squamous carcinoma. We must determine whether this is, from its essential nature, a glandular tumor in which squamous change has occurred or whether it is a squamous tumor with pseudoglandular appearances.

(Lantern slides.) This is just a roentgenogram to show the filling defect of the esophagus, the obstruction, and the dilatation above.

This is a very low power view to show the relationship of the mucous membrane to the growth. There is growth right up to the edge of the epithelium, at the margin of the tumor. Here is a rather thick layer of squamous stratified mucosa of the esophagus, and here is ulcer surface, and then all this is tumor of a rather diffuse appearance. This is one of the obvious squamous areas showing the large swollen cells with keratinization in the center of the clump. Surrounding this you will see the other areas of growth which are not so obviously squamous. Here are clumps of epithelial growth but they are not recognizably squamous. A great deal of this growth was of that nature, and this is why some of you voted for undifferentiated or embryonal carcinoma.

One point that I particularly want to draw attention to is the presence of little vacuoles all through these clumps of growth. What these little cavities contain we do not know. Some of them may be filled with watery fluid, edema fluid, or there may be some mucous material. It is hard to tell, and special stains do not help much. The point is, however, that the clumps are undifferentiated clumps which, from the previous slide, we may suppose to be of the nature of squamous epithelial clumps but with these little spaces. You will notice that the cells are not orientated in any special way around these spaces. They do not suggest glandular acini.

Here is another area of the same kind of growth in which there is a great deal of formation of spaces and the cells now do appear to be orientated around the spaces, giving a glandular appearance.

The question is whether this glandular appearance is indeed the fundamental attribute of the tumor and the squamous change merely a metaplasia within that, or whether this is merely an artificial appearance, due entirely to little cavities in solid tumor clumps. I think the time has come for me to tell that I favor the second alternative. I think this is a straightforward squamous-cell carcinoma in which liquefaction and cavity formation on a small scale all through the poorly differentiated parts of the growth have led to spuriously glandular appearances.

This is a thing that happens in a sizable proportion of squamous-cell carcinomas. It happens in cancers of the skin. I have seen carcinomas of the skin that were obviously squamous-celled, but in which parts of the growth looked exactly like glandular structures because of this accumulation of fluid. Although there was no proof of it in this case, that formation of fluid is often demonstrably related to glycogen accumulation. When you see big, swollen, edematous looking patches in a squamous-cell carcinoma and you make appropriate stains on appropri-

ately fixed material, such as Best's method applied to alcohol-fixed material, you will often succeed in showing that those areas are rich in glycogen. I am not saying that that applies to this case, but I would be not at all surprised to find that it does so. Glycogenic degeneration of squamous epithelial cells can produce pseudoglandular appearances.

One other point: In this tumor there were in places some well developed and obvious glands. You all noticed those, and they may have led you to assume that this was fundamentally an adenocarcinoma. I thought in my sections that all of those glands were simply included residual glands of the esophagus. I did not think they were tumor tissue. I am sorry I cannot show you conclusive evidence for that on the screen, but I draw your attention to this view and perhaps you might like to reexamine your slides.

As a follow-up of this case, the patient died at Veterans Administration Hospital, Temple. Dr. Marjorie J. Williams states that autopsy revealed recurrence of tumor at the site of removal, with metastases in the lungs, pleurae, liver, para-adrenal region, and lymph nodes. The microscopic picture was still the same as presented.

Dr. John J. Andujar, Fort Worth: What significance do you attach to what appear to be prominent intercellular bridges between the individual cells in some areas?

Dr. Willis: This is an aspect of the squamous characters of the growth. Intercellular bridges are present in the normal epithelium of the esophagus just as they are in normal skin. They often appear in exaggerated form in areas of edema where the cells connected by the bridges get separated, and these long, radiating, star-shaped processes from cells become prominently conspicuous. Later on the two pull apart as the result of the swelling or accumulation of material and leave a space. I think that is probably the basis of the space formation in this case.

When squamous metaplasia occurs in a primarily glandular tumor, that squamous metaplasia shows intercellular bridges the same as if it had been originally a squamous-cell carcinoma. The adenoacanthomas, as we call them, of the uterus or the squamous-cell cancers of the gallbladder or of the lung may show typical intercellular bridges although primarily they are adenocarcinomas.

Dr. William W. Tribby, Memphis, Tenn.: How do you feel about grading tumors of this type, that is, squamous-cell carcinomas?

Dr. Willis: I am not a grader. I know that the clinician is anxious for pathologists to say whether a lesion is a highly differentiated, relatively slowly growing tumor, a badly differentiated, rapidly growing tumor, or something intermediate. Well, I am prepared to say that, but I would rather not say it in the terms of 1, 2, 3, 4 or A, B, C, D, because different people attach different significance to these grading numbers. It is an arbitrary procedure. As for trying to estimate whether one-quarter, two-quarters, three-quarters, or four-quarters of a tumor are differentiated or not, I think that is just nonsense. Another thing that I think makes grading a waste of effort is that you examine only one little bit of a tumor. You look at this bit and say this is grade 1, but you do not know that an inch away where you did not examine it, the tumor is grade 4. We all know that tumors vary enormously in structure from place to place, and unless you have representative samples over the whole area of the growth, your grading is just the chance of what bit you happen to examine. I am not keen on grading numerically, and I do not estimate the size of nucleoli nor make "malignancy indexes."

Anonymous Guest: This lesion is tinctorially and morphologically like a tumor of the palate recently reported by Foote and Stewart and called mucoepithelioma. Was a stain for mucin done?

Dr. Willis: I am not clear what has been called mucoepithelioma. I suppose that means some tumor secreting mucus. I know that the term has been applied to the mucus-secreting salivary tumors. There are many tumors that contain mucus: the salivary tumors, the tumors of the alimentary tract, the nonepithelial tumors that make mucus, like the myxosarcoma and its allies, and the nerve sheath tumors. Mucoepithelioma refers to epithelial tumors that produce mucus. Well, there is a good variety of those and I do not see much advantage in inventing this new name to supplant one of the older ones like salivary tumor, or mixed tumor of the salivary glands, or pleomorphic tumor of the salivary glands, or whatever one cares to call it. But this case has no real affinity to the salivary gland tumors. I think it is a highly malignant squamous-cell cancer of the esophagus which will invade and destroy and kill quickly, unlike the salivary tumors.

CARCINOMA OF STOMACH WITH METASTASES

CASE 3.—Contributed by Lt. Col. C. J. Lind, Brooke General Hospital, Fort Sam Houston.

Patient.—63 year old white man.

Specimen.—Stomach, lung, and dura.

History.—The patient was treated in 1946 for cirrhosis, neurosyphilis, and sciatic neuritis. In March, 1948, he developed pain around the umbilicus. Study showed a moderate anemia, ascites, and an enlarged liver and spleen. There were tumor cells in the sternal bone marrow. The patient died in June. At autopsy there was an infiltrating lesion extending throughout a major portion of the stomach

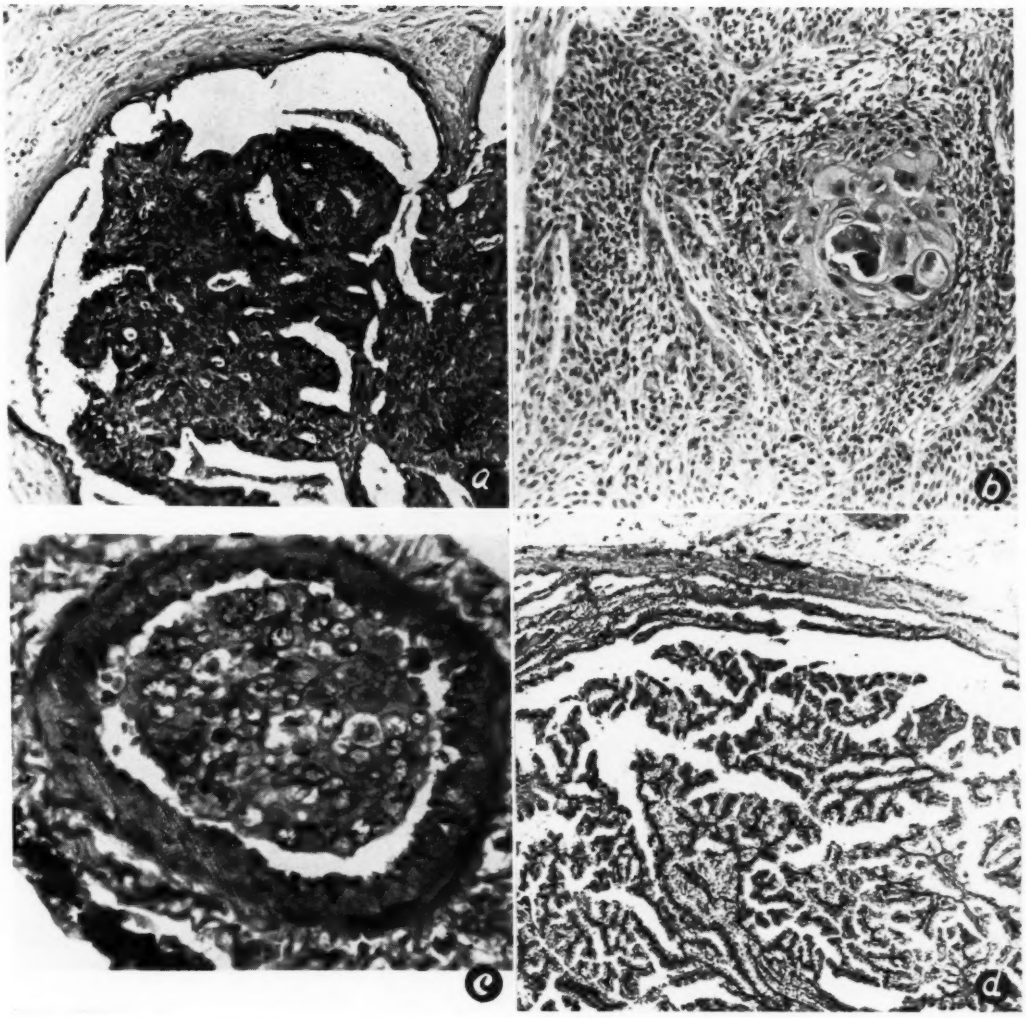


FIG. 1a. Case 1. A representative field of intraductal papilloma. x 105.

b. Case 2. Squamous-cell carcinoma of the esophagus showing a keratinized cell nest. x 105.

c. Case 3. Tumor embolus from gastric carcinoma in a pulmonary arteriole. x 356.

d. Case 4. Papillary cystic adenocarcinoma of the thyroid metastatic in a lymph node. x 30.

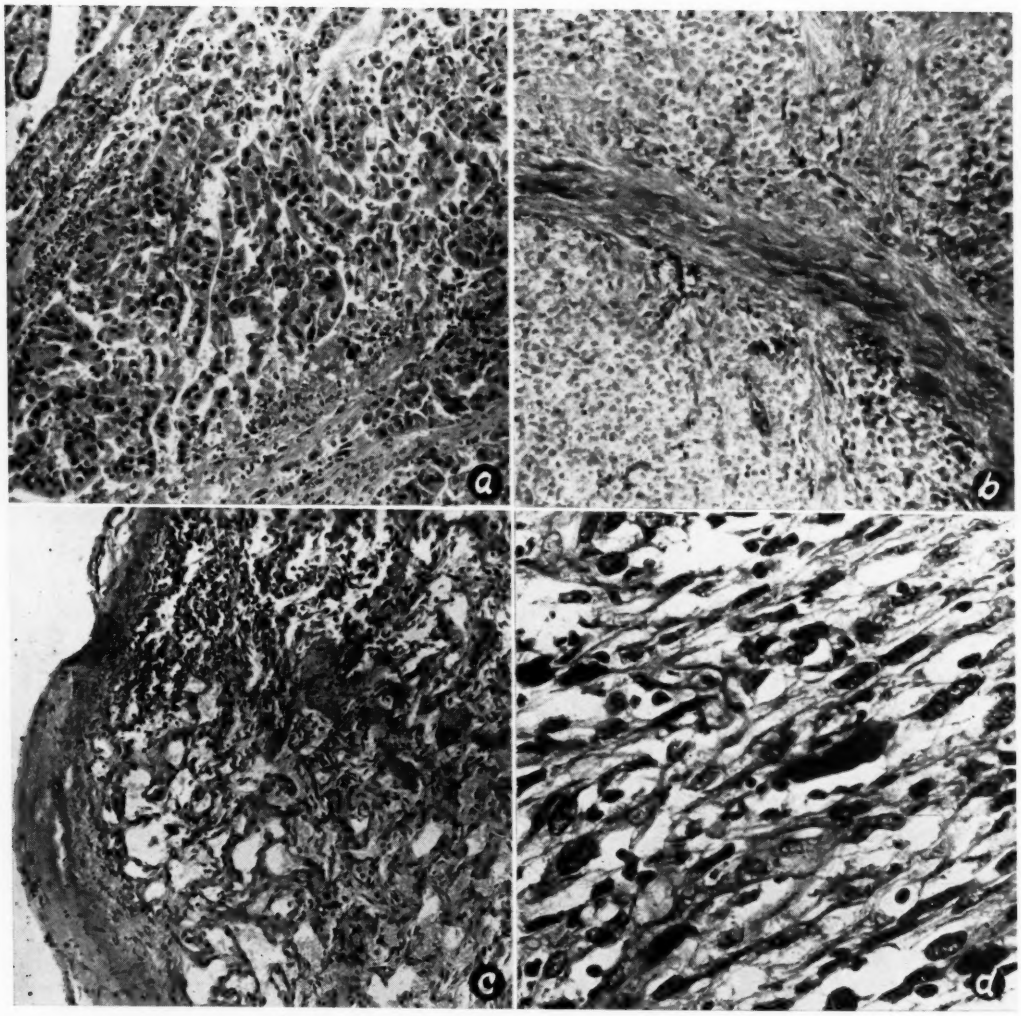


FIG. 2a. Case 5. Tubular papillary adenocarcinoma of the kidney. This photomicrograph shows an area of more disorderly growth. x 105.

b. Case 6. Metastatic undifferentiated carcinoma of the skin of the back from an undetermined primary site. x 105.

c. Case 7. Malignant angioma of the spleen metastatic in the liver. This photomicrograph is of an area showing a well differentiated cavernous structure. x 105.

d. Case 8. Leiomyosarcoma of the uterus. x 450.

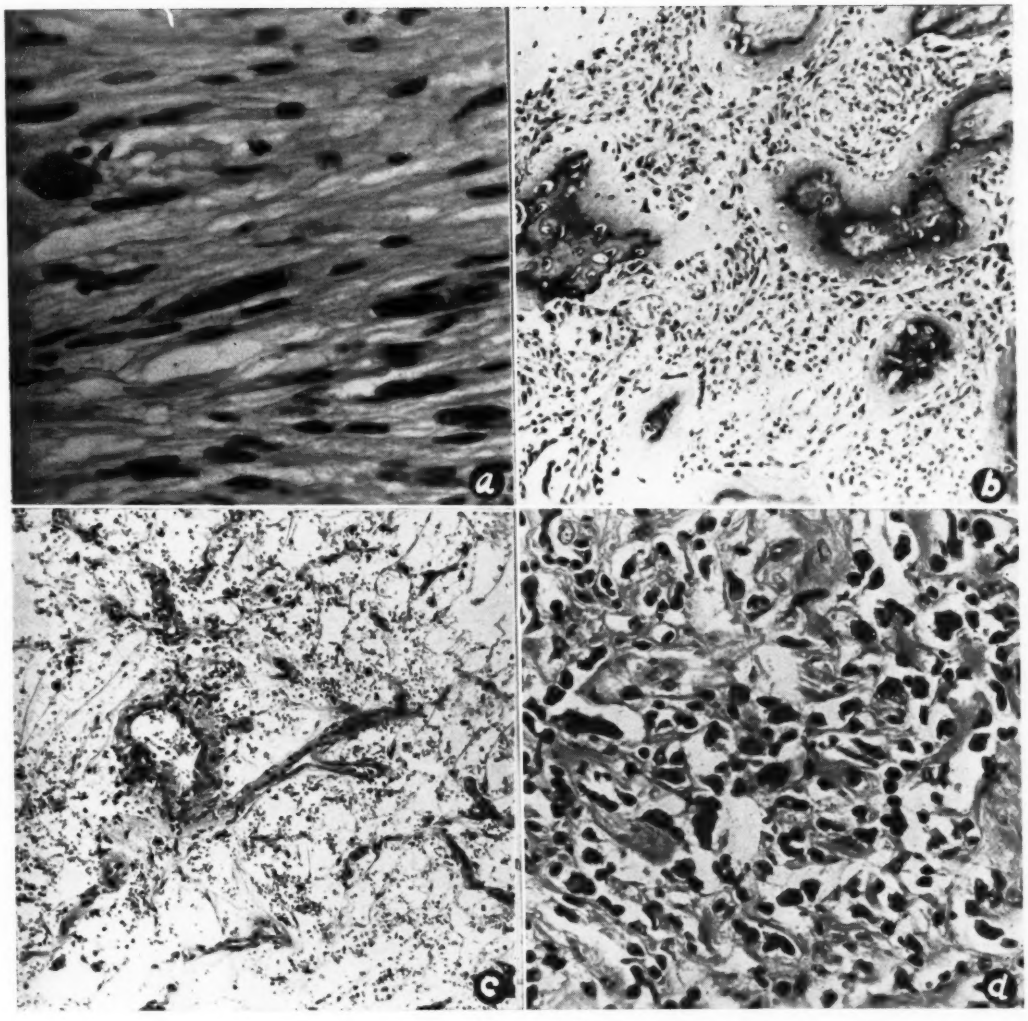
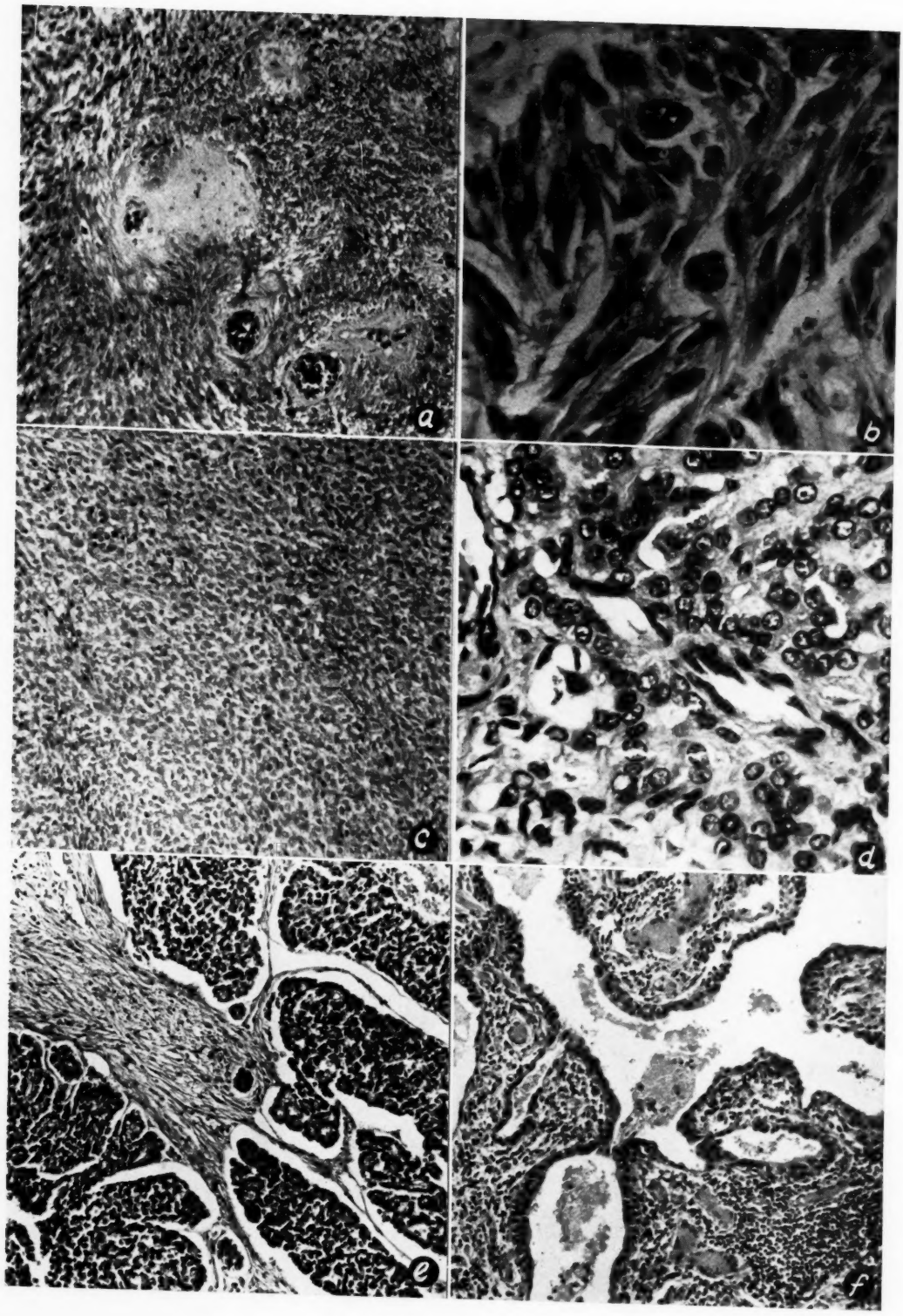


FIG. 3a. Case 9. Pleomorphic-cell fibrosarcoma. x 475.
b. Case 10. Mixed tumor of the bladder. This photomicrograph shows an area of bone formation. x 105.
c. Case 11. Fibromyxosarcoma of the bladder. x 105.
d. Case 12. Questionable chronic inflammatory lesion or local Hodgkin's disease of the oviduct. x 450.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wall. Tumor nodules were found in the bone marrow, lymph nodes, capsule of the prostate, and the dura mater.

Diagnoses Submitted.—Adenocarcinoma (mucinous, colloid, and so forth), 32; leiomyosarcoma, 1; malignant melanoma, 1.

Dr. Willis: There is an overwhelming vote here. I think we can perhaps accept the opinion of the majority.

(Lantern slides.) Here is the low power view. This was an exceedingly diffuse tumor. The mucous membrane was still intact in this region but greatly swollen and thickened by tumor infiltration. The muscular coat was similarly infiltrated. However, it was a rapidly growing tumor because there were a lot of mitotic figures. The cells were mainly polyhedral. Some of them were "signet-ring" cells with mucous droplets in them and others were rather pleomorphic, but the predominant structure was of the type seen in these slides.

Here is a section of the lung, and you will notice that many of the pulmonary arterioles are occupied by masses of tumor. The lungs were riddled with this kind of embolic lesion. I remind you that many, many years ago there was a German pathologist named M. B. Schmidt, who discovered in cases of gastric carcinoma and other abdominal carcinomas that even in cases where the lungs did not appear to contain metastatic growth, emboli within the pulmonary arterioles were frequently to be found. Let us remember that, because even in modern writings we read of the "paradox" of widely disseminated tumors in bones, liver, brain, and elsewhere, with the lungs clear. When the writer says "with the lungs clear," he usually means with the lungs *macroscopically* clear, and unless he has gone to the trouble of cutting half a dozen representative sections from different regions of the lungs and shown that there are no emboli of this nature, of course he is not in a position to say that the lungs are clear.

I am satisfied that when you find a case of carcinoma of the breast, carcinoma of the prostate, or any other tumor in which, with wide dissemination in other tissues, the lungs appear to be clear, if you do a little histologic research on those lungs, nine times out of ten you will find tumor emboli that have not grown into visible tumor metastases. This is not just an occasional finding. It is a common finding, if you look for it.

The tumor has gone to the lungs, but it has not grown there. It is a case of seed and soil. Different seeds germinate in different soils, and tumor seeds do this too. Some tumors grow well in lungs and some do not. Most tumors grow well in liver, but some do not. Few tumors grow well in skeletal muscle. Most tumors grow well in bone marrow, but some do not. These anomalies and discrepancies in tumor distribution are examples of the seed-soil relationship which you see here exemplified. You have only to remember this sort of picture to realize that tumors may disseminate without necessarily producing visible metastases. At the same time those tumor cells are not dead. You will find that they are living, healthy cells even though they may have been there for long periods. Sometimes you know that they have been there for long periods because they are organized, with a fibrous stroma connecting them to the vessels walls. This has not happened in the present case—these cells are loosely attached. They are recent arrivals, no doubt. But sometimes in cases of disseminated tumor of this kind, particularly cancer of the stomach, the tumor emboli are glued onto the vessel walls by fibrous tissue. They have acquired a stroma, but they are still intravascular. They have not multiplied outside the vessel, but even in those old, arrested, organized tumor clumps there are still obviously healthy tumor cells, sometimes even with an occasional mitotic figure. Since these cells survive and multiply even after being long inhabitants of this tissue, it is likely that these tumor thrombi go on spreading quietly along the vessel and perhaps eventually spreading from the arterioles into the venules. Then the stage is set for wide dissemination into the general circulation. This has all been rather a divergence from the case in point, but it has been relevant because this case so beautifully exemplifies dissemination of tumor by the blood stream.

Here is a pulmonary arteriole in high power with a healthy clump of embolic cells. This might be an oblique section, of course, or it might be a branch vessel, but there is an occluding mass of growth.

Here in the sternal bone marrow there are tumor clumps. Whether these were part of a large area of metastatic growth or whether they were just microscopic foci that were picked up in otherwise healthy marrow, I am not certain. I should think likely there was visible and obvious growth.

Here is a photograph of tumor cells which were found in the blood. Tumor cells have rarely been observed in the blood stream, but this seems to me to be an unequivocal instance. Here are these large, peculiar cells with enormous nuclei and vacuolated cytoplasm which we cannot attribute to any kind of abnormal blood corpuscle. I believe that our friends

FIG. 4a. Case 13. Spinal tumor, possibly a spindle-celled astrocytic glioma or possibly meningioma. x 105.

b. Case 14. Malignant melanoma; cerebral metastasis showing pigment in the tumor cells. x 475.

c. Case 15. Cellular undifferentiated nephroblastoma. x 105.

d. Case 16. Testicular tumor, probably an unusual form of interstitial cell growth. x 475.

e. Case 17. Adenocarcinoma, probably teratomatous, of the testis. x 105.

f. Case 18. Congenital pulmonary anomaly showing irregular bronchial structures. x 105.

of the Brooke General Hospital propose to report this case. I hope they do, because apart from the leukemias there are only half a dozen references in the whole of medical literature to seeing tumor cells in the blood stream. I would like to mention that the first suggestion as to the diagnosis in this case was based on finding these cells in the blood.

We do not need to go into the question of differential diagnosis here. This is a polyhedral-celled and signet-ring celled anaplastic carcinoma of the stomach which has invaded small vessels, lymphatics, and/or veins in the wall of the stomach itself, and has thence disseminated by the blood stream to many organs. How it got to the lungs is not certain. It might have got there via the liver, in which there were metastatic growths, or it might have got there via the thoracic duct, which is a frequent route of abdominal malignancies to the lungs.

Dr. Stuart A. Wallace, Houston: In connection with this case, do you consider "linitis plastica" should be discarded from medical terminology? Are all of these cases carcinoma or does syphilis also produce a "leather bottle" type of stomach?

Dr. Willis: I think that practically every case that has been described as "linitis plastica" is a case of diffuse carcinoma of the stomach. Not this case, of course. This is not the diffuse fibrotic type in which tumor cells are relatively scanty and stroma is tremendously abundant. In the typical "linitis plastica" the fibrous tissue that is excited by the scattered tumor cells is so abundant and the tumor cells are so isolated from one another that it is sometimes difficult to identify tumor cells over a large area. I have seen cases in which it appeared as though the whole stomach were the seat of a diffuse, fibrosing lesion. No great harm is done in calling that fibrosing lesion "linitis plastica," in inverted commas in our minds, so that we remember that that lesion is almost always, if not always, a carcinoma. These terms creep in and get established, and we cannot abolish them by legislation. I am not sure whether chronic inflammatory lesions, syphilis and other chronic inflammations, can produce an identical picture. I have never seen such a case. The only cases of diffuse fibrous thickening of the gastric wall that I have seen, as far as I know, have always been cancerous.

CARCINOMA OF THYROID

CASE 4.—Contributed by Dr. A. O. Severance, Baptist Memorial Hospital, San Antonio.

Patient.—49 year old white man.

Specimen.—Nodule from neck.

History.—Three weeks prior to admission the patient noticed a slightly sensitive and enlarging nodule in his neck. There was a 3 by 5 cm. scar over the anterior thyroid region, which had been irradiated. In the neck below the midportion of the left mandible was a 2 by 3 cm. node, fairly movable, which was removed. This specimen consisted of two dark red firm masses 2.5 and 1.5 cm. in diameter. The capsule was dark red and the cut surface was brown and grossly resembled thyroid tissue.

Diagnoses Submitted.—Carcinoma (adenocarcinoma, papillary adenocarcinoma, papillary cystadenocarcinoma), 33; papillary adenoma, 1.

Dr. Willis: Again there is an overwhelming vote in favor of carcinoma designated in various ways. While we are looking at this I think it is perhaps apposite to say that these terms "adeno-," "papillary," "cyst-," are only descriptive prefixes. They do not mean species of tumors. We drop into the habit of thinking that we should divide carcinoma of a particular organ up into this, that, and the other type according to these adjectives. Strictly speaking, that is not the scientific way of looking at things. Carcinoma of a particular tissue is carcinoma of that tissue and that is the species. Then, of course, just as there are varieties within a biologic species, so there are varieties within the species of tumor, and we try to designate those varieties as well as we can. Just as the botanist says that a particular species of tree has mottled leaves by calling it "maculatum," so we try to designate what we can see in the form of microscopic structure in a particular tumor by giving it appropriate adjectives. The beginner in pathology, and frequently the clinician, gets the idea that these adjectives mean more than they do. Let us remember that our names of things are often only shorthand descriptions of them. They are not statements with any species significance.

I would like to say here that even the diagnosis of "papillary adenoma" is not far wrong, because there is not any distinction in the thyroid certainly, and in many other tissues too, between papillary growths that we are pleased to call benign and papillary growths that we know to be malignant. This holds for papillary growths in the breast, as in our first case, and it holds for papillary growths in the thyroid. It is a question of how far the tumor has gone whether or not we regard it as malignant. It holds for papillary growths in the urinary tract; the most benign looking bladder "papilloma" of today may in a few months' time be a dangerous carcinoma. It holds even for papillary growths in the skin. We all know that papilloma of the skin turns into carcinoma sometimes. From experiments we know that when we paint a carcinogen on an animal, the first skin growth is not a carcinoma but a papilloma; we get tar warts and other similar warts from the pure carcinogens. Later on in the evolution of the tumor it becomes more aggressive. When it becomes invasive and destructive, we all say, of course, clinically this is a carcinoma. We must distinguish, I think, between clinical malignancy and biologic malignancy.

We pathologists are inclined to think in terms of

the biologic attributes of the tumor. But the clinicians like us to tell more precisely what will happen to a particular patient, and to say that in the diagnosis. For example, we make the diagnosis of papilloma. This means the lesion will not do the patient any immediate harm; it means a tumor that can be excised locally and will not have metastasized. So the clinician has a nice correlation between what we have called it and what happens to the patient, and that is as it should be. We should help in that way by trying to indicate in the nomenclature what is relatively innocuous from what is dangerous.

The point I am trying to make is that among the tumors of a particular tissue there is a wide range of structure and behavior. There are those that remain local and noninvasive, grow slowly, and cure easily. There are those that grow rapidly, invasively, and destructively and that we all agree from the beginning are carcinoma. Then in between are tumors which evolve. They start off by being remediable, local, and, by our nomenclature, simple. If it is a papillary growth, it is called a papilloma; but that is not to say that in a little time this same growth may not become dangerous. It may evolve without any sudden transition into what we all recognize as a carcinoma. It is not a question of a sudden mutation of the cells, but rather a gradual alteration in habit of growth and relationship to the neighboring tissues.

But, to return to our case, the point is that in the vote we are all agreed, really. One of us thinks that the differentiation is so high, so good, so uniformly benign-looking that it is justifiable to call this a remediable tumor, a local, nonmetastasizing papillary adenoma. Most of us think that this is a dangerous tumor, in spite of its good degree of differentiation. Those are the points that arise out of that vote.

(Lantern slides.) This is a characteristic low power view which shows that the tumor is thyroid. There are vesicles containing colloid, just such vesicles as we are familiar with in adenomas of the thyroid, and the general papillary intracystic pattern is evident.

This is a higher power view showing that the cells are all fairly uniform. There were few mitoses to be seen in this growth. Some of the vesicles are distended into cysts with little colloid; in others there is more colloid present. Here is a part of the capsule, and the question arises whether there is true infiltration here or whether it is just inclusion of tissue in the fibrous margin of the growth. Encapsulation is more a naked eye description than a microscopic one in many instances, and I myself do not place great emphasis on this apparent infiltration, even though I believe that this is a malignant tumor.

Well, so much for the structure. We are all agreed that this is a thyroid tumor and that it is predominantly papillary and intracystic in structure. But the question is now whether this is benign or malignant. The cytology does not help us. I should think of all the organs in the body the thyroid is about the most difficult as regards purely histologic distinction between innocence and malignancy. You will see carcinomas of the thyroid with metastases in the lungs and bone with perfect thyroid structure. On the other hand you will see benign adenomas of long duration which are completely diffuse and devoid of colloid and devoid even of epithelial appearances. When you are confronted with one of these odd growths in the thyroid, how are you to tell whether it is likely to be dangerous or whether it is likely to remain local? There are several criteria.

First of all, you must look for obvious histologic signs of malignancy. That is to say, you ask whether in parts of this growth there is any evidence of cellular anaplasia; is there an area where the cells are rapidly multiplying and running wild and failing to differentiate? In many of them you will find areas of that kind. There is no evidence of that here, however.

Secondly, you must ask whether this is papillary or not, because all papillary growths of the thyroid are dangerous. Some of them will stay local for a long period, but the general experience of surgeons is that when they remove what they believe to be an adenoma of the thyroid and it turns out to have a papillary structure, it is likely to recur. A high degree of differentiation such as you have seen in this specimen can be seen in metastatic growths without any anaplastic tissue whatever, and you can have perfection and uniformity of this papillary structure in widespread metastatic growths.

I think on structural grounds this is a malignant tumor because of its papillary character and disorderly arrangement. This is in spite of its relatively benign looking cytology.

Here is a point that I think you do not know about: In one of the other sections that I saw earlier there was a zone of lymphoid tissue around part of the edge of this growth. It was such a distinct zone I had no doubt that it was actually a lymph node and that this growth was a metastatic deposit.

That brings me to a specimen from an entirely different case which I wish to show you. This was a papillary growth from a lymph node in the side of the neck of a middle-aged person. It was one of a number of nodes that had been removed on several occasions. It has a thyroid structure of vesicles containing colloid, a well differentiated, benign looking papillary pattern, and it is cystic. It also has some little calcified spots here and there. This patient was regarded at first as having a lateral aberrant thyroid. However, the multiplicity of these masses and the fact

that some of them were demonstrably in lymph nodes led me to tell the surgeon that he ought to do a hemithyroidectomy on that side. He said, "There is nothing palpable in the thyroid. The thyroid is normal." I said, "Primary growths in the thyroid can be very small. It might be wise and it can do no harm to remove that lobe of the thyroid." So, rather against his will, he did. In that lobe of the thyroid, impalpable and without any tumefaction that could be felt even after removal, there was a primary growth of obviously infiltrating carcinoma just a few millimeters in diameter.

In looking back over the literature of the subject, it is interesting to me to find that Dr. Crile[3] in his record of the operative results of "lateral aberrant thyroids," found that a high proportion of them were malignant, that they frequently recurred, that they were nearly always papillary and rather disorderly. He considered them exceedingly dangerous tumors. He also made the interesting observation that a considerable proportion of these people had something the matter with the corresponding lobe of the thyroid gland, although he did not say that it was carcinoma.

After reading those and other records, and after considering past experiences, my view is that probably there is no such thing as a developmentally lateral aberrant thyroid and that most or all of the lesions that have been called by that name are really instances of slowly progressive metastasis of highly differentiated, usually papillary, carcinoma from the thyroid into the lymph nodes adjacent.

Dr. Asa Beach of San Antonio reports that this patient had a thyroidectomy at another hospital some years previously. The mass in the neck, laterally and fairly high up, was believed by Dr. Beach, who removed it, to be in lymph nodes along the jugular chain; so in retrospect there is not the slightest doubt that this patient had a primary carcinoma of the thyroid and that these were late developing metastases. The long duration of these cases is well exemplified here. This patient had an interval of several years between removal of the thyroid and the development of these isolated metastases in the neck. He has been going on for two or three years since that, and he remains well.

Dr. Frank Townsend, Galveston: What is your criterion for the gross and microscopic diagnosis of adenoma? How do you distinguish adenomas in so-called nodular thyroids?

Dr. Willis: I think I have covered most of the points that concern the differentiation of adenomas and carcinomas—the papillary structure and the presence of any anaplastic changes. I am not sure about the identification of invasion in the capsule. I think possibly if there is genuine evidence of invasion of the blood vessels in the capsule, that is important in spite of the structure. I do distinguish adenomas from nodular goiters. I think there are plenty of nodular goiters that have no adenomas in them. To me, an adenoma is a well circumscribed mass of tissue which appears to be different from the surrounding goiterous tissue in which it may lie and which often has a capsule. Of course, there are plenty of nodular goiters which are just lumpy and irregular because of cystic change, degeneration, hemorrhage, fibrosis, and the progress of the goiter at different rates in different places.

CARCINOMA OF KIDNEY

CASE 5.—Contributed by Dr. D. A. Todd, Nix Hospital Laboratories, San Antonio.

Patient.—Middle-aged Mexican man.

Specimen.—Left kidney.

History.—The patient was first seen in 1946, complaining of bloody urine, loss of weight, and a palpable mass in his left flank, probably associated with the kidney. Operation was refused and the patient was not seen again until March, 1949. At that time there was a huge tumor mass in the left flank. The patient had lost much weight. On March 9, 1949, the left kidney with a segment of ureter was removed. The gross specimen consisted of a kidney measuring 17 by 11 by 9 cm. and almost completely replaced by hemorrhagic tumor.

Diagnoses Submitted.—Carcinoma of kidney (hypernephroma, papillary adenocarcinoma), 34; adenocarcinoma of undescended testicle, 1.

Dr. Willis: There is a powerful vote here in favor of its being a primary cancer of the kidney. Hypernephroma, of course, is a synonym for that. It is a term which I think is deservedly falling into disrepute because it was introduced with a wrong assumption —the assumption that these tumors are adrenal cortical tumors from rests in the kidney. We now know with certainty that that was an incorrect hypothesis. There is no question that the ordinary tumor of the kidney is carcinoma of the renal convoluted tubules. It often has a tubular structure, sometimes so beautifully differentiated that it really looks like convoluted renal tubules. It produces none of the hormonal disturbances of adrenal cortical tumors. So this term "hypernephroma" is synonymous, I take it, with carcinoma of the kidney. Papillary adenocarcinoma, again is only descriptive of what was seen in parts of this growth. I do not know whether the author of the solitary diagnosis of an undescended testicle tumor put that in to excite a little entertainment or not; this suggestion need not be taken seriously. I do not know of any reports in the literature of tumors of undescended testicles placed so high.

(Lantern slides.) This is the general structure of the tumor. It is a rather disorderly but obviously glandular tumor with a good deal of irregular papillary growth.

The higher view shows irregular, tubular structures lined by cells of a fairly uniform size and type. Notice that these cells have a tendency to vacuolation, or clear areas in their cytoplasm. The bulk of the cytoplasm as you see it here is glandular, but there are conspicuous vacuoles and empty looking areas in the cytoplasm. That is of some significance because I think it links up with the clear-celled tumors of the kidney. The normal tubule of the kidney has granular epithelium, but under slight provocation from some pathologic condition, as for example a toxemia or a lipoid nephritis, the tubular epithelium readily accumulates lipoid and becomes relatively vacuolated and clear-looking in microscopic preparations. Therefore, whether the cells in the tubule of the kidney are mainly granular or mainly vacuolated does not matter much. I do not think it justifiable to divide carcinomas of the kidney into two distinct types. We see evidence of clear-celled characters in many solid-celled tumors and vice versa. This one is predominantly solid-celled, but it has some slight indications that it may contain excessive lipoids in parts.

I mentioned that sometimes carcinomas of the kidney have a conspicuously papillary, tubular pattern. Of course, when the tumor grows, as it does grow, largely expansively, this pattern gets thrust together and the tubule lumens get obliterated; all that is left is a mass of clear-looking cells in which you cannot discriminate the lumens of the tubules.

Dr. J. R. Thomas, Houston: What correlation is there between size of kidney tumors and their malignancy?

Dr. Willis: I would say scarcely any relation at all. On the one hand we see tiny tumors, clinically undiscoverable, which produce numerous metastases, and on the other hand we see huge tumors filling the whole abdominal cavity and displacing all the viscera which have produced none. In between, of course, we have all possible combinations of metastasis and size of the primary tumor. Every tumor at one stage is small, of course, but I would say that in general there is not any real correlation between tumor size and metastatic potentialities.

PROBABLE METASTATIC CARCINOMA

CASE 6.—Contributed by Lt. Col. C. J. Lind, Brooke General Hospital, Fort Sam Houston.

Patient.—19 year old white man.

Specimen.—Subcutaneous nodule.

History.—Three weeks previously, while the young man was playing basketball, one of his teammates noted a hard, raised nodule on the right side of his back over the lower thorax. He had no symptoms. Several weeks after removal, the tumor recurred locally and was more completely excised.

Diagnoses Submitted.—Liposarcoma, 10; malignant melanoma, 7; metastatic carcinoma (kidney, 2), 10; syringocarcinoma, 1; mixed tumor, 3; rhabdomyosarcoma, 2; neurofibrosarcoma, 1; spindle cell sarcoma, 1.

Dr. Willis: This tumor is a problem. Here is a young man, otherwise healthy, who developed a tumor in the skin or subcutaneous tissue of his back; it was excised and it recurred. I think it only fair to tell you that there is more to it than this—that the tumor recurred after the second removal also, that the man developed multiple secondary growths in his lungs, that he died, and that, unfortunately, no necropsy was obtained.

There is a considerable variety of diagnoses here. The essential parenchyma of this tumor consists of rather clear, pale-looking cells with vacuolated cytoplasm. Some voters think that this is due to the cells being essentially adipose tissue cells, and others think that, like the last case, it is mainly due to their being lipoid-containing cells, but of an epithelial nature. Some persons even went so far as to say these vacuolated epithelial cells may have come from a renal primary tumor. The other diagnoses are variable. We have to admit, I think, that this is a peculiar tumor and that the diagnosis is difficult.

I would like to comment on this diagnosis of neurofibrosarcoma. Some of you may have noticed that there were a few obvious nerve bundles traversing parts of this tumor. Neighboring these nerve bundles were some whorls of tissue not unlike what one sometimes sees in nerve-sheath tumors. I must say that this made me wonder if possibly this growth might be an unusual nerve-sheath tumor, but I did not feel confident about that.

(Lantern slides.) Here is this rather peculiar tumor. It consists of ill-defined masses of polyhedral and pleomorphic cells, not darkly staining, rather uniform in kind, set in a connective tissue stroma which is intimately mixed with groups of the tumor cells. Down here there is a lot of stroma with a few strands of tumor cells mingled with it. Here is a Masson stain which shows the connective tissue traversing the tumor in strand formation. Notice the uniformity in the size and the appearance of the cells, except for a little hyperchromatism here and there.

This is a reticulin stain showing again that the general tendency is for the tumor tissue to be arranged in clumps, not well defined. Here is connective tissue with columns and zones of tumor cells interspersed with it.

This is a high power view showing that many of the cells are vacuolated. They show rather ill-defined cell outlines, with nucleus thrust to one side and a droplet of some sort of material compressing the nucleus. Here are some big cells with vacuolated cytoplasm. The question arises whether these cells are epithelium with some kind of epithelial secre-

tion or metabolite, mucin, or lipoid material, or whether these are nonepithelial cells, possibly of neurogenic origin, possibly of connective tissue origin, and more akin to myxomatous elements. Again, might this be fat?

Unfortunately we are not able to answer some of these questions. We cannot say what the contents of those vacuoles is. I did not feel that it looked like mucin. It did not stain bluish in any situation and it did not become extracellular in any situation; nor did these cells suggest signet-ring cells like those of gastric carcinoma. The vacuolation was much more irregular and the cells in many places were large. The cytoplasm appeared to be granular and vacuolated at the same time, in many parts, and I thought that the appearances were much more like those of some sort of lipoid substance. However, I admit that this was only speculative and I am not in a position to aver just what that material was.

The things that occurred to me were that first of all, this was possibly a metastatic epithelial tumor, and I had carcinoma of the kidney in mind as being a likely source because of the vacuolation of the cells, the clear-celled appearance which I thought was more likely to be lipoid than mucinous. Against that was the patient's age, only 19 years of age, which is exceptionally young for cancer of the kidney. Yet I have seen carcinoma of the kidney in an adolescent, so I am prepared to admit its possibility. I am not asserting that this is a carcinoma of the kidney; I do not think the evidence justifies that; but I think it is a strong possibility.

The other possibility that occurred to me was that it might conceivably be a nerve-sheath tumor with peculiar epithelioid cells. I have seen nerve sheath tumors with areas of compactly arranged polyhedral cells that certainly looked like sheets of epithelium. Some pathologists have even described what they considered to be epithelial tumors of nerves on the basis of cells of this kind. So I felt I could not altogether exclude the possibility that this might be some queer nerve-sheath tumor with a predominant, compact-celled arrangement simulating the appearance of an epithelium. That would fit in well with the patient's age because nerve-sheath tumors commonly do arise in young as well as middle-aged people.

Then I could not altogether exclude the possibility of a liposarcoma, arising from ordinary adipose tissue or possibly from the so-called hibernating gland, which is situated around the scapula. There is an extensive sheet of peculiar-looking brownish adipose tissue present in the human being as well as other mammals, extending from the nape of the neck to below the inferior angle of the scapula, variable in distribution. If a tumor arose from that it might have peculiar characteristics that would make it different from the ordinary run of liposarcomas. This is just a speculation, I am afraid, for there have been few hibernating gland tumors described.

Those are my three suggestions: It might easily be an epithelial tumor, possibly from a renal cancer, a metastasis by the blood stream. It might conceivably be a nerve-sheath tumor of a peculiar kind, though I must confess I have not seen one just like it. Or it might possibly be a liposarcoma, possibly from that special adipose tissue that is situated in that region. If you want the percentage possibilities of those three diagnoses, I really think it is an epithelial tumor. If I had to make one diagnosis, I would say metastatic carcinoma, but I cannot feel certain. I think this is a case in which only careful necropsy would have been the final court of appeal.. Unfortunately, we have not got that, so these three possibilities will have to remain just possibilities; but if I did a postmortem in this case I would feel unhappy if I failed to find a primary growth in some epithelial organ.

ANGIOSARCOMA

CASE 7.—Contributed by Dr. A. O. Severance, Baptist Memorial Hospital, San Antonio.

Patient.—50 year old white woman.

Specimen.—Liver from autopsy.

History.—Splenectomy was done in August, 1944, for painful splenomegaly for six months, slight jaundice, and weakness. The platelet count was 140,000. There was hyperchromic anemia and a normal differential. The spleen weighed 1,600 Gm. Some months later a skin nodule developed above the left breast. Severe anemia and purpura followed. Metastases to bone and liver were discovered and some were irradiated extensively. In October, 1947, a pathologic fracture of the left femur occurred. The nodule above the breast was then 15 by 7 cm. and the liver was far below the umbilicus. Urethane was given with marked shrinkage of the metastases. The patient died February 8, 1948.

Diagnoses Submitted.—Hemangioendothelioma, 25; Hodgkin's disease, 4; Kaposi's disease, 2; necrosis due to urethane, 1; hepatoma, 1; myxosarcoma, 1.

Dr. Willis: There is a considerable variety of diagnoses. Most think it is a vascular tumor. The diagnosis of Kaposi's disease is not far removed, because there is a strong body of opinion that Kaposi's disease is a blood vascular tumor.

(Lantern slide.) Here is what seemed to me to be the best differentiated area of the growths in the liver. If you were shown that as a student in pathology, I do not think you would have any hesitation at all in saying, "Oh, that's an area of cavernous angioma."

Here is a higher power view of some of the less differentiated material. The spaces here are bigger; they are less well circumscribed; they have not got such clearly defined fibrous walls; the tissue between

is more cellular; and the spaces are irregular. There is a lot of cellular tissue between the main spaces.

This is a high power view showing the spaces and the intervascular, cellular tissue with a good deal of pigment mixed with it. I guess that was the reason why somebody suggested melanoma, but it is much more likely that this is blood pigment, seeing that this is such a hemorrhagic, vascular tumor. I do not see any mitotic figures showing here, but there were mitotic figures in some of the sections.

Here is a section of one of the lesions in bone, showing a cavernous, vascular tissue with a certain amount of intervascular, cellular tissue similar to what we see in the liver.

Now here is a middle-aged patient who had a diseased spleen and a diseased liver containing highly vascular lesions, who then developed destructive lesions also in bone and some other parts. This case fits in with a well known group of cases of angiomatous tumors of the spleen, liver, and sometimes other organs. The literature now reports a number of cases of adults with angiomatous spleen and liver, and the suggestion has frequently been made that the tumor has started in the spleen, metastasized to the liver, and then metastasized elsewhere. I think that interpretation is legitimate. It seems natural as regards the relationship of spleen and liver, and, of course, as regards subsequent dissemination to other parts; but I am not altogether satisfied that in this group of cases the lesions may not arise simultaneously or successively in the spleen and the liver.

The liver is a common site of angiomatous disease, and we know of a group of cases of congenital angiomatosis of the liver in which the whole liver is penetrated throughout by tissue not much different from what we see here. We also know that there can be cavernous angiomas in the spleen. At postmortem more than once I have seen coexistent angiomas of the spleen and angiomas of the liver—benign ones, the ordinary cavernous, simple ones. Therefore, I am not sure that in these cases it may not be that both the liver and the spleen, as members of the reticuloendothelial tissue in the same area of the body, may not simultaneously or in succession suffer the same disease, and that what we see here is a widespread angiomatous neoplasia of both organs. Then metastasis supervenes, obscures, and complicates the picture, and we cannot tell how much is multiple formation and how much is metastasis. We know that multiple formation is common in angiomas of all parts of the body. We know that angiomas of the skin are often multiple, so that it is not at all unlikely that angiomatous changes in the spleen and liver might be multiple too.

This is a malignant tumor, I have no doubt of that. This is not like the simple angiomas that are birth marks in the skin and the spongy angiomas of the liver. This is a genuine, actively growing malignant neoplasm; witness those cells with mitotic figures, and the destructive, secondary growths in bone. I question whether the term "hemangioendothelioma" is advisable for designating the malignant members of this group. It often is used in that sense, but I think it might be simpler and preferable to speak of "angiosarcoma." After all, if we say "sarcoma" for all the other mesenchymal malignant tumors, if we talk of fibrosarcoma, chondrosarcoma, osteosarcoma, lymphosarcoma, why shouldn't we, when we have a blood vascular tumor that is malignant, say "angiosarcoma"? It seems to me a simple and logical nomenclature and preferable to the long, clumsy name.

Dr. William W. Tribby, Memphis, Tenn.: Would you assign a name other than angiosarcoma to malignant tumors arising from lymphatic channels? Will angiosarcoma be all right for blood vessel tumors and lymphangiosarcoma for lymphatic vessel tumors?

Dr. Willis: I think the trouble in the nomenclature would be the difficulty of being sure that a tumor was really a lymphatic malignant tumor. It is hard enough to recognize a blood vascular tumor as blood vascular because so many other tumors of an anaplastic type have lots of blood vessels in them. You see great quantities of blood vessels in some other kinds of sarcoma or some diffuse kinds of carcinoma, and many mistakes have been made in calling these "angiosarcomatous" tumors just because they have a lot of blood vessels.

In the case of a lymphatic vessel tumor you would not have even the blood content to point to the possible nature of the tumor. You would presumably merely have spaces occupied by clear fluid, which might become contaminated with blood by hemorrhage. The benign lymphangioma, cystic hygroma of the neck, for example, often has blood-containing spaces in it, probably as the result of secondary hemorrhage, and the fact that it contains blood does not make it a blood vascular tumor. If you had a pure lymphangiosarcoma, it would be difficult to recognize because it would have no recognizable contents of any specific kind in its vascular spaces, and I doubt if it could be distinguished with any precision from other kinds of diffuse sarcoma. It would be a practical difficulty of microscopic diagnosis that might often lead you astray in assigning a name.

I think perhaps it might be well to retain the term angiosarcoma for any tumor that we recognize as being a malignant tumor of vascular origin and not be too keen about insisting on specifying whether these vessels are lymphatics or blood vascular. I do not know that there would be much point in doing so, either. Remember that mesenchymal tissues are

plastic structures. We do not need to suppose that if a tumor springs from lymphatic endothelium, it will continue to grow as lymphatic endothelium all of its life.

If we did introduce a term "lymphangiosarcoma," I am sure there would be many enthusiasts who would want to identify something that they could not give another name to as lymphangiosarcoma; we would have a plethora of misnamed cases with a new name, and confusion would be added to confusion.

LEIOMYOSARCOMA OF UTERUS

CASE 8.—Contributed by Dr. A. O. Severance, Baptist Memorial Hospital, San Antonio.

Patient.—50 year old white woman.

Specimen.—Uterus.

History.—In 1946, the patient had a hysterectomy. The uterus was the site of a large, soft tumor. In October, 1948, the patient received roentgen-ray therapy to the pelvis for recurrence. Later symptoms of obstruction developed and much deep roentgen-ray therapy was again given, with decrease in size of the abdominal mass. At subsequent operation recurrent tumor was found in the pelvis and protruding from the vagina. On frozen section, the mass resembled that seen originally in the uterus. Ten days later intestinal obstruction developed, and the patient died April 9, 1949.

Diagnoses Submitted.—Leiomyosarcoma, 27; giant cell sarcoma, 3; spindle cell sarcoma, 2; fibrosarcoma, 2; chorioepithelioma, 1.

Dr. Willis: There is a strong consensus in favor of its being sarcoma, and most people think it arose from smooth muscle. Those who regard it as a giant cell sarcoma or a spindle cell sarcoma, of course, are not specifying any histogenesis. They are merely using a cytologic or morphologic adjective. What they are saying is that this is sarcoma but we do not know what tissue it arises from. Two people think that this is not a smooth muscle tumor but a fibroblastic tumor.

(Lantern slide.) This is a low power view showing the normal muscle and the margin of the tumor. This consists of interlacing, rather ill-defined bundles of cells which are predominantly spindle cells with, however, a good deal of cellular pleomorphism. That is evident enough even at this low power. We see big cells with hyperchromatic nuclei scattered about in a predominantly spindle cell growth.

Here is the medium power view, showing some of these abnormal cells, multinucleated in some instances but predominantly spindle cells.

The Masson preparation shows a little connective tissue traversing the highly cellular spindle-cell growth.

In my opinion there is no doubt that this is a leiomyosarcoma of the uterus. I think the predominance of spindle cells with the relative paucity of connective tissue as seen in the Masson preparation is characteristic, and so is the cytology. The interlacing bundles with scattered, abnormal cells is the usual appearance. There is one point here that is not specified in the history. We do not know whether this tumor arose in a preexisting myoma. Sometimes that is clearly the case. We see a fibroid uterus with one, or several, or many myomas, well circumscribed and typical, and we find that one of these has a soft area which is deficient in the usual glistening, fasciculated appearance in section. When we make microscopic preparations of that soft area, we see that the cells are atypical and mitoses are present and that we are dealing with malignant degeneration of a preexisting benign leiomyoma. My impression is that the majority of leiomyosarcomas of the uterus are of that nature. Of course, often as the tumor becomes more advanced, the malignant growth displaces or replaces all the rest and it is hard to say where it started, but in a considerable proportion of cases it is possible to be reasonably sure that it did arise in a myoma.

I would also like to mention that leiomyosarcoma can be highly differentiated and that it can be indistinguishable microscopically from benign myoma. It can be so perfect in its structure that even in its metastases in the lungs or liver it is typical, interlacing smooth muscle tissue, which any student would recognize as such. Indeed, some of the older morbid anatomists invented the term "malignant myoma," which, of course, is a fallacy in nomenclature because by definition myoma means a benign tumor, so you are really saying "malignant, benign tumor." However, there is no doubt that some of these tumors are so thoroughly differentiated that histologically they are indistinguishable from benign ones, even though they metastasize.

My reason for excluding the diagnosis of fibrosarcoma, which was the other alternative, is that these interlacing bundles are uniform over the whole extent and do not tend to fibrify. You do not see areas of abundant collagen with tumor cells scattered through it; you merely have interlacing bundles with a rather scanty amount of collagen as a stroma between them. However, it is not easy to distinguish fibrosarcoma from leiomysarcoma. There are plenty of cases in which even the most experienced of us are uncertain, or ought to be uncertain, with which we are dealing. I do not think you can rely on any fine details of cell structure to enable you to be sure, and sometimes we must be content to say the lesion is a malignant, spindle-cell growth, which is what a couple of people did say logically. They said, "We are not sure that these are smooth muscle fibers, and we will not run ahead of our evidence. Let us say that this is a spindle cell sarcoma." A fair and reasonable attitude, but of course we try to specify things as closely as we can, and I think that judging from other leiomyosarcomas of the uterus, this is fairly characteristic of its type,

and I do not have much doubt in my own mind that that is what it is.

Dr. Asa Beach, San Antonio: Because there is some chance for uterine myomas to become malignant, do you feel that symptomless uterine fibroids should be removed?

Dr. Willis: That is a hard question to answer. I do not know what proportion of the adult female population has got one or more small fibroids; a high proportion, I think. I do not suppose it would be wise to do wholesale hysterectomies. A bulky uterus or one in which any kind of symptoms have been caused by fibroids should be removed, for it will only go on getting bulkier and making worse symptoms, of course. The reason for removal, however, is not so much the risk of sarcoma development as other risks, such as hemorrhage and obstruction and interference with other pelvic functions. However, the risk of sarcoma is real, though small, and is one additional reason for treating a fibroid uterus with radical removal when it has caused any trouble. As to removing symptomless fibroids, I would doubt the wisdom of doing that routinely.

Dr. Mark C. Wheelock, Chicago: In some studies published several years ago, Corscaden and Stout concluded that the diagnosis of a leiomyosarcoma of the uterus is academic since excision is usually complete and death rarely results. Would you give your impressions in the problem of leiomyosarcoma of the uterus as regards (1) frequency, (2) malignancy (degree), (3) spread, (4) recurrence, and (5) cause of death?

Dr. Willis: I do not know that paper, but certainly that conclusion is the opposite of my own with regard to these tumors. I have seen a good many of them that have been removed and they invariably recurred in all the cases I know of, and they frequently metastasized. I have a number of specimens in my collection of metastatic growths in the lungs, liver, and lymph nodes. They not infrequently metastasized to the retroperitoneal lymph nodes.

I would like to tell of a striking instance of metastasis from one of these tumors. The patient came into the hospital for the removal of a fibroid uterus. It was removed and sent down to the Pathology Department, where we sliced it up and found only "fibroids." While she was in the hospital she complained of pain in the back, and a roentgenogram showed destruction of two lumbar vertebrae. We went back to the uterus and cut up those fibroids a little more carefully. We found that one of them, a nicely encapsulated, spherical fibroid of the usual appearance, had a crescentic area of soft growth. The patient eventually died and we did a necropsy. She had secondary growths in many bones, in the lungs, and in the retroperitoneal lymph nodes. The extensive dissemination was from the growths in the retroperitoneal lymph nodes which had invaded the inferior vena cava. My impression is that leiomyosarcoma of the uterus is an extremely dangerous disease, not to be treated lightly.

FIBROSARCOMA OF PENIS

CASE 9.—Contributed by Dr. J. M. Moore, Santa Rosa Hospital, San Antonio.

Patient.—67 year old man.

Specimen.—Penile tumor.

History.—The chief complaint was a tumor on the shaft of the penis. It was first noted six months ago, at which time it was the size of a small pea. It moved with the skin, giving little or no pain. The mass measured approximately 8 by 5 by 4 cm. It appeared to arise from the right posterior lateral portion of the proximal part of the shaft of the penis. It was lobulated, sessile, irregular and semi-hard and had a necrotic base. There was no obstruction to the urinary stream.

Diagnoses Submitted.—Rhabdomyosarcoma, 10; leiomyosarcoma, 10; myosarcoma, 1; fibrosarcoma, 5; neurofibrosarcoma, 5; sarcoma, 3; leiomyoma, 1.

Dr. Willis: Everybody is agreed that this is not an epithelial tumor and that it is a connective tissue or muscular tumor. Some think that it is a striated muscular tumor. I presume they mean that they can see transverse striae in the spindle cells of this tumor. If they do not mean that, then I cannot discuss that diagnosis any further with them. If you see a tumor which looks as though it ought to be a rhabdomyosarcoma from the general shape of the cells and the staining properties of the cytoplasm, but you cannot find transverse striae in it, I cannot admit it as a rhabdomyosarcoma. I think that if the cells of a rhabdomyosarcoma are so well differentiated that they look like voluntary muscle, they should have cross striae. If muscle-like cells in a sarcoma do not show cross striae, I would say that that is strong evidence indeed that the tumor is not a rhabdomyosarcoma.

A highly anaplastic growth, of course, has no differential characters about it, but a tumor that shows cells with differential characters so conspicuously present that you really think these look like muscle fibers —long cells with multiple nuclei and with eosinophilic cytoplasm—if that is the criteria on which you are basing a diagnosis, then those cells should be differentiated enough to have cross striae, because cross striae appear at an early stage in the development of rhabdomyoblasts.

Others think this is a smooth muscle sarcoma. Others are satisfied just to call it myosarcoma, and a few think it is fibrosarcoma, neurofibrosarcoma, just sarcoma, and leiomyoma.

(Lantern slide.) The tumor consists of rather whorled masses of spindle cells, only a little pleomorphic. A few cells here and there are bigger and

more darkly stained than the rest, but on the whole the cells are fairly uniform.

Here is a medium power view showing these spindle shaped cells of a rather uniform kind in longitudinal section and in cross section.

Here at high power is one of these long cells with a large nucleus, and there is a good deal of cellular pleomorphism, too. Notice that there are a lot of longitudinal fibrils interspersed among the cellular tissue. It is a question, of course, whether these fibrils are processes of the cells themselves or intercellular fibrils. Those who think this is a myosarcoma would look upon most of these fibrils as the tails of cells, the ends of fusiform cells. Those who think that it is a fibrosarcoma would look upon most of them, no doubt, as being collagen fibers, produced in the intercellular matrix.

A reticulin stain shows again the general bundled configuration with a good deal of reticulin-like material in between. By the way, while we are talking about reticulin stains I think I am bound to tell you that I do not think they are very helpful. When you have a good precise picture of some kind, such as well differentiated lymphoid tissue or well differentiated epithelium situated in connective tissue, you get a nice, clear, precise picture with a reticulin stain. On the other hand, if you have a highly anaplastic lymphoid tumor or a highly anaplastic epithelial tumor, there may be no demonstrable reticulin. In those cases in which histologic distinction between one kind of anaplastic tumor and another kind is in doubt by the more usual staining methods, I think it is usually in doubt as well after reticulin stains have been applied, and if you rely on the reticular stain to make a differential diagnosis, I think it is often an artificial reliance. By means of that stain and with your own preconceptions of what reticulin can be and can do, you may allot your tumor to a particular group, but you may not be advancing knowledge much.

Another thing I would like to say about reticulin stains is this: There is no such substance as reticulin. It is merely a modified form of collagen, and every kind of reticulin stain shows variable results with various collagenous tissues. In other words, reticulin is just one aspect of collagen which takes up silver under certain circumstances. We all know how fickle all the silver stains are. Sometimes they stain and sometimes they do not. You may say that is just a question of standardizing the circumstances under which you stain. Well, the circumstances cannot be standardized. From the time a piece of tissue is excised in an operating theater or obtained at a necropsy, nobody can standardize what happens to it. Variable times elapse before it is put in fixative, the fixative is at variable hydrogen ion concentrations, and even if you insure that it is of the same concentration, you are not sure that the amount of fixative is the same for this tissue as for that. There are hundreds of variables in what happens between the time the tissue is removed and the time the pathologist stains it, and nobody can possibly control them all, even assuming that it was worth while to control them. So I think that reticulin stains are interesting and they make pretty pictures, and we are supposed to do them on all the tissues that contain reticulin, but I must confess I have never found them of much help.

This is an iron hematoxylin stain, because some people suggested rhabdomyosarcoma, and the rhabdomyosarcoma suggestion involves trying to find striae. Cross striae are not to be found in this tumor, as far as I can ascertain. I have been over it fairly carefully and I could not find any cross striae.

Here is a Masson stain applied to this tumor. I must ask your acceptance of my assurance that this is in the tumor—that this is not just a strand of connective tissue running into the tumor and separating its different lobules. This is a genuine bit of tumor and it has a great deal of collagen in it. In fact, what is not cellular content is collagen, and on the strength of that I would say that this is a fibrosarcoma.

Rhabdomyosarcoma would be a peculiar tumor to have in this situation. It is a rare tumor in any situation, but here it would be an extreme rarity. The cytology is not like that of most rhabdomyosarcomas. It has not got the great cellular pleomorphism with the elongate, parallel-sided eosinophilic cells; it has not got the cross striae; and it has not got any of the big, bulky giant cells, of spider shape which sometimes are present and in which striae may be found scattered irregularly or radially in the cells. And then there is that Masson preparation, which does show a lot of collagen in the tumor tissue.

That brings me to a point I would like to make. I think a great many of the "rhabdomyosarcomas" that have been reported in the literature are fibrosarcomas, unless cross-striations have been clearly shown. I am not speaking of those in which the histologic proof is clear but where it depends merely on the presence of pleomorphic cells with elongated forms and tadpole shapes, parallel sides, and some cells with eosinophilic qualities. I think that under those circumstances most of these pleomorphic-celled sarcomas are fibrosarcomas. I think that rhabdomyosarcoma is a diagnosis that can be sustained only when transverse striae can be shown.

Dr. C. T. Ashworth, Fort Worth: Do you consider that some of the "fibrosarcomas" are neurogenic? If so, what criteria are useful in this histologic diagnosis?

Dr. Willis: This is a perennial source of debate. Ever since Ewing put forward the view that many

fibrosarcomas arise from nerve sheaths, this has been hotly debated, and I suppose it will go on being hotly debated as long as there are pathologists.

The issue got further confused when people started to argue about the relationship of the connective tissue sheaths of nerves to the Schwann cell elements. Dr. Arthur Purdy Stout of New York in his beautiful work on neurilemmomas,[8] the Schwann cell tumors, showed how the Schwann cells produce large quantities of collagen, and of course, if you have a Schwann cell tumor with a lot of collagen in it, it may not be easy to distinguish from a fibroma unless the characteristic palisading or regimentation of the cells is conspicuous.

My feeling is that a considerable proportion of fibrosarcomas do arise from nerve sheaths, not from the Schwann cell elements, but from the ordinary connective tissue elements of the nerve sheaths, and I think that is what Ewing meant. Some of you may know that excellent paper of Stewart and Copeland[7] on the neurogenic sarcomas. I think that a considerable proportion of fibrosarcomas are of nerve sheath origin, but certainly not all of them. There are plenty of examples of fibrosarcoma arising from fasciae and tendons and the sheaths of viscera.

Unless a tumor is attached to a large nerve I do not see what histologic criteria can make you certain that it arose from nerve sheaths. All the tissue of the body are penetrated by nerves, and if a fibrosarcoma springs up anywhere, it is possible (though perhaps impossible to prove) that it arose from nerve sheaths. Whorling in the tumor does not help much, although it may suggest the possibility. Myxomatous change, I think, is probably a significant factor because when sarcomas do arise from big nerve sheaths and we know that they are sheath sarcomas, they often show a good deal of myxomatous tissue. I think when we see a whorled fibrosarcoma with a good deal of myxomatous change in the matrix, we can assume that it may have arisen from nerve sheaths. But as I say, this is a discussion that will go on indefinitely because there is no final criterion of nerve-sheath connective tissue as opposed to non-nerve-sheath connective tissue.

MALIGNANT MIXED TUMOR OF BLADDER

CASE 10.—Contributed by Dr. R. A. Willis, Royal Cancer Hospital, London.

Patient.—74 year old man.

Specimen.—Tumor of bladder.

History.—The patient complained of recent dysuria and hematuria. An isolated pedunculated tumor 3 cm. in the main diameter was removed surgically from the bladder. This had a smooth surface and a hard, gritty center. The section is a representative one through the middle of the tumor. Other sections showed similar structure.

Diagnoses Submitted.—Osteogenic sarcoma, 8; malignant melanoma, 7; mixed cell sarcoma, 5; osteochondrosarcoma, 4; teratoma, 3; rhabdomyosarcoma, 2; carcinoma with stromal metaplasia, 2; metaplastic osteogenesis, 2; giant cell tumor, benign, 1.

Dr. Willis: This was a pedunculated tumor with recent symptoms of hematuria removed from the bladder of an elderly man, and the section that has been submitted is characteristic of many sections that were cut. I can assure you that there are no tissues anywhere in this tumor other than those you have seen in your sections.

Most people recognize that there is a good deal of skeletal tissue here—osteogenic sarcoma—and then I dare say the people who regard this as teratoma have seen the bony elements in it. Some imply stromal bony metaplasia, metaplastic osteogenesis. The diagnosis of giant cell tumor also recognizes the skeletal elements in the tumor. The majority of us are thus in agreement that this tumor contains skeletal components. You will notice that two people believe this is carcinoma with stromal metaplasia.

(Lantern slide.) The bulk of this tumor did consist of skeletal tissues. Here are bony trabeculae seen in low power, and interspersed among these is much young cellular tissue with multinucleated giant cells which have all the appearance of being osteoclasts, just as we see in the giant cell tumor of bone.

This is the high power view of the same bony trabeculae, partly calcified and partly uncalcified, and then cellular stuff around, including osteoclasts and osteoblasts. These cells are so obviously like osteoclasts that I have no hesitation in calling them by that name.

I know that there is a school of thought in this country which regards the giant cell tumor of bone as not osteoclastic. I cannot understand that because I think that the similarity between these giant cells of the ordinary giant cell tumor of bone and osteoclasts is so striking that I cannot imagine what else they are. Mitotic figures are rather plentiful in this bone formative tissue.

Here is an interesting area which I hope most of you noticed in your slides. It shows obviously epithelial tissue in large solid clumps with a good deal of mitotic activity abutting on and infiltrating the mass of bony tissue. Here we have a tumor, the central bulk of which is composed of connective tissue with a lot of bone and a lot of osteoclasts and a lot of pre-osseous spindle-celled stuff with mitoses, but which here and there around the margin is clothed by and superficially infiltrated by definitely cancerous epithelium.

We might call this lesion a carcinoma with a great deal of bony metaplasia in its stroma; that is, we

might assume that the stroma is just a stroma with no neoplastic qualities. We might say that it is carcinoma with malignant bony growth concomitant with it, that is, a true mixed tumor—a carcinoma and an osteogenic and osteoclastic sarcoma in the stromal tissue of the epithelial growth. Or, we might say this is a sarcoma of the bladder wall which shows metaplastic ossification and which has induced carcinomatous change in the overlying epithelium. I do not think there would be any of us who would deny that that epithelium is cancerous. I think the appearances of the epithelium are so clearly cancerous that we can dismiss it as being a mere hyperplasia of the epithelium over the osteogenic growth.

My own view is that this is a true mixed tumor. I think both the epithelium and the connective tissue are neoplastic and that we are dealing here with one of those rare mixed tumors in which both epithelial and nonepithelial tissues show progressive proliferation and are intrinsically malignant. I have no doubt at all about the malignancy of the epithelium. I think it is a carcinoma, whatever else it is, and I think that the bulk and the number of mitotic figures in the bony tissue are too great to be dismissed as mere stromal metaplasia in the carcinoma. We do see cases of abundant bony formation in the stroma of a cancer, but it is usually a scattered process taking place throughout a bulky epithelial growth. Here, the bulk of the tumor is of this bone-formative nature. I think that this is a genuinely mixed tumor.

I do not know what has happened to the patient during the few months which have elapsed since this tumor was removed. It would not surprise me if later he had metastases in his lungs with bone formation in them, just as in rare cases of fibroadenoma of the breast with bony metaplasia in the fibromatous element the patient sometimes develops osteogenic metastases in the lungs. I would remind you that the ordinary fibroadenoma of the breast is a true mixed tumor. Its fibromatous element is just as much neoplastic as its epithelial element.

There is one other point I would like to mention. Your fellow countryman, Huggins,[5] has shown that when bits of urinary tract epithelium are transplanted and it regenerates to form a cyst or to clothe a raw surface, it always induces the formation of bone in the neighboring connective tissue. There is an inductive effect of the regenerating epithelium on subjacent connective tissue, a specific and characteristic effect. I have therefore often thought it rather surprising that in carcinomas of the bladder we rarely see bony metaplasia in the stroma of the growth. Since stromal metaplasia is apparent in many tumors it would seem that urinary tract tumors would be the very ones in which to see it, in view of Huggins' results with transplantation experiments.

There is a last point I would like to mention. I have said that this is a bone-formative tumor which also contains osteoclasts which are bone destructive. I am one of those people who believe that all of the tissues of bone are mutually interconvertible and that we do not need to suppose that osteoclasts, osteoblasts, fibrocytes, and vascular cells in bone are immutable species; I think that all of the tissues inside a bone, when they begin to multiply, are plastic, and that the osteoblast of today may well be an osteoclast tomorrow if the local circumstances require it. Look what happens in hyperparathyroidism. The calcium is liberated from the skeleton by great osteoclastic activity, and the skeleton contains vast numbers of osteoclasts. Later, when the parathyroid tumor is removed and the skeleton settles back to normal, a great majority of those osteoclasts disappear and ordinary osteocytes are left embedded in bone trabeculae. It is a question of transformation. The osteoclasts do not migrate away somewhere and they do not just disintegrate.

We must look upon bone as a highly variable, fluctuating structure, the actual mechanical arrangement of which depends greatly on the stresses to which it is subjected and on the biochemistry of the fluids that bathe it. I think that all of these cells are mutually interconvertible, and when I say a cell is "bone-formative," I mean that it is a skeletogenic cell which will be an osteoclast, an osteoblast, or a fibroblast, according to the circumstances in which it finds itself in the particular situation.

To return to the case, I do not agree with the diagnosis of teratoma because there is nothing here that could not be formed in the bladder. A teratoma means a tumor that contains multiple tissues foreign to the part. You may say bone is foreign to the bladder, yet bone can form anywhere where there is connective tissue. Let us not be too hasty in calling things "teratoma." We must see a lot more than bone to warrant this diagnosis. We must see some nervous tissue, or some respiratory cysts, or some skin, or some of the other common components of teratomas. As I have said, this tumor was serially sectioned and there were no other foreign tissues. The only "foreign" tissue was the bony tissue which could easily be the result of local metaplasia.

Dr. A. O. Severance, San Antonio: Will you explain the difference in terms as you use them between a true mixed tumor (as in the bladder tumor) and a teratoma? Some have not heard your paper on embryonic tumors and teratomas.

Dr. Willis: In my conception, a mixed tumor is one in which there are at least two separate neoplastic components. Here again, there is much confusion;

for example, we speak of "mixed" tumors of the salivary glands for a different reason. We speak of them as mixed because they are pleomorphic, they show a great variety of structure; yet most pathologists are satisfied, I think, that they are just epithelial tumors with rather peculiar secretory characters and that the cartilage in them is not really cartilage at all but only pseudocartilage. It is a mucinous stuff with isolated cells scattered through it that makes it look like cartilage. There is no genuine complexity in the tumor, only pleomorphism. It is only when we see, as we occasionally do in the breast, the thyroid, the uterus, and in this case in the bladder, two distinct tissues which are neoplastic, that we are justified in calling a tumor mixed.

Now, what about teratoma? I think that term should be carefully restricted to tumors with tissues foreign to the part—entirely foreign to the part, not just tissues that can be derived by metaplasia. We know that cartilage and bone and mucinous tissue can arise from fibroblasts by metaplasia, so that does not make a teratoma. We know that squamous epithelium can arise from glandular epithelium, so that too does not make a tumor a teratoma. What we see in a teratoma is a variety of tissues of a kind entirely foreign to the part. That is to say, in an ovary we see a teratoma containing skin and teeth and nervous tissue and respiratory epithelium and striated muscle, none of which are ever seen in normal ovaries. I do not think we should apply the term teratoma to the embryonic tumors, even though they may contain heterotopic tissues. The ordinary Wilms' tumor of the kidney may contain striated muscle or it may contain bone and cartilage, but that does not make it a teratoma because we know that bone and cartilage can arise from plastic mesenchyme, and the tumor has got any amount of plastic mesenchyme in it. Nor does striated muscle in a renal tumor mean a teratoma because we know that striated muscle can arise by metaplasia from nonstriated muscle. That may be a surprise to some of you, but if you will consult two beautiful articles written by one of your own countrymen, Carey,[1, 2] in the *American Journal of Anatomy,* you will find remarkable instances of that. You will find that by exercising a dog's bladder by repeatedly filling it and letting it empty itself, filling it again and letting it empty, at the end of thirty-six hours of such exercise the bladder becomes rhythmically contractile like a heart and its muscle becomes cross-striated. In other words, adult smooth muscle can be converted by metaplasia into striated muscle. This need not surprise us. We have striated muscle in places where other animals have smooth muscle, and vice versa. We do not need to suppose that all striated muscle in the body belongs to the embryonic myotomes and to nothing else.

The embryonic tumors can produce all that the primitive, plastic tissue of the organ can produce, but they cannot produce more. You do not find skin or respiratory epithelium in a Wilms' tumor of the kidney. All you find are the tissues of the kidney itself, in an immature state, plus those tissues that we know, from other facts, could conceivably be derived from the indigenous tissues. But in a teratoma we find lots of tissues that cannot possibly be indigenous to the organ. They are completely remote and foreign. That is why I do not call that bladder tumor a teratoma. There is nothing in it that need be regarded as at all foreign to a bladder wall because we know that nonosseous tissues can become osseous on slight provocation.

EMBRYONIC SARCOMA OF BLADDER

CASE 11.—Contributed by Dr. J. M. Moore, Santa Rosa Hospital, San Antonio.

Patient.—16 year old white girl.

Specimen.—Bladder tumor.

History.—The patient first complained of burning on urination. Several months later she felt something hanging out of the vagina. Examination revealed a large tumor mass in the lower abdomen, and on pelvic examination there was a tumor in the vaginal introitus that seemed attached to the urethra. At operation a tumor 10 by 7.5 by 3.5 cm. was removed from the trigone of the bladder. It was beefy red to reddish black in color, firm in consistency, and somewhat rubbery. On cut section it presented mucoid white streaks running through a pink background.

Diagnoses Submitted.—Myosarcoma, 6; myxoma, 6; sarcoma botryoides, 5; hemangioma, 5; myxosarcoma, 4; angioma, 3; malignant mixed tumor, 2; liposarcoma, 1; embryonic tumor, 1.

Dr. Willis: We are all agreed that this is a nonepithelial tumor. It is a connective tissue tumor of some kind, and most of us think it is malignant. So there is a fair consensus in spite of the rather variable terminology.

(Lantern slides.) This tumor has a lot of blood vessels traversing a rather cellular, but not well differentiated connective tissue. I wonder if those who wanted to call this muscular in origin might have had these longitudinal bundles of spindle-shaped cells in mind? Those were rather peculiar, I thought when I examined this tumor, and I was anxious to exclude the possibility of their being muscle, but I came to the conclusion that they were only blood vessels seen in longitudinal section with perivascular cells arranged along them.

This is a high power view again showing the blood vessels, a good deal of interstitial hemorrhage, and these spindle-shaped and asteroid cells of the intervening tissues; one of which you see in this picture is

in mitosis. Here we have an area which shows a lot of the intervening cellular tissue with blood vascular channels here and there through it. I do not think that any of the elements in this tissue can be specifically identified as muscular. They are merely mesenchymal cells—rather poorly differentiated connective tissue cells—which seem not to be forming much collagen and not to be forming much mucin. There may be a little mucin there, judging by the bluish staining qualities of some of the spaces between the blood vessels, but it is not conspicuous and I do not know that there is enough to justify calling this myxomatous. It is a young, connective tissue comparable with the young connective tissue of an embryo. It is mesenchyme, and mesenchyme is mucinous. It is a normal constituent of mesenchyme to have interstitial mucin, and often not readily recognized by stains, so that I look upon this as one of those embryonic, mesenchymal tumors of the urogenital region of childhood.

This is a tumor of the group of so-called sarcoma botryoides. That is usually thought of as a vaginal tumor, but it can arise from a wide area. It can arise from the cervix of the uterus, the vaginal walls, the urethra, the base of the bladder, or from all of those areas simultaneously. In the male it often involves the prostatic region and periprostatic tissues as well as the bladder. In a considerable proportion of cases this mesenchymal tissue does produce striated muscle fibers, and then we are warranted in calling the tumor an embryonic rhabdomyosarcoma. It produces striated muscle fibers even in those cases in which the tumor arises in situations devoid of striated muscle. That is to say, in the base of the bladder a tumor may spring as a polypoid growth from the mucous membrane and yet be rich in striated muscle. It may interest you to know that in the Museum of the Royal College of Surgeons in England there are two specimens of this nature with large polypoid growths springing up from the base of the bladder in young boys, which belonged to John Hunter and which I believe to date about 1780 or 1785. Many years after John Hunter put them in his museum, one of the Conservators of the Museum there, Shattock, scraped a few of the cells out of these tumors without damaging the specimen, and put them on a slide and showed that they were transversely striated rhabdomyoblasts.

This present tumor does not show any muscle fibers, but a proportion of this class of tumors does not. It shows only mesenchyme, but it has all the potentialities of mesenchyme. It may produce smooth muscle; it may produce striated muscle; it may produce cartilage; it may produce bone. It frequently produces mucinous tissue; it may produce fibrous tissue. It may produce all of these things. These growths form a single group of embryonic mesenchymal tumors of the urogenital region and some of them differentiate one way and some of them another. They are all similar in their histogenesis, their essential nature, and their behavior. They are all malignant, however highly differentiated they may be. This tumor is poorly cellular, with not much in the way of cellular activity, a few mitoses here and there, but not more than might be seen in granulation tissue. Yet it is malignant; it is sure to recur whatever you do to it. Usually you cannot do much to it because it usually involves extensive areas of tissue in the urogenital region.

This patient is rather old; most of these tumors occur in infancy, usually at 2, 3, or 4 years of age. Sometimes the tumors are known to be present at birth. Your countryman, the late H. G. Wells, described some of these tumors as present at birth, in an excellent paper he wrote on congenital malignant neoplasms.[9]

So, I agree with most of your diagnoses, but I would like to call this simply "embryonic sarcoma." I am prepared to call it a myxosarcoma if you like, because there is some mucin there; and I would not object to its being called a fibrosarcoma or a myxofibrosarcoma. It is just a sarcoma and it will behave as such.

Dr. Bernard Rosen, Randolph Air Force Base: Does sarcoma botryoides involve the remnants of the urachus?

Dr. Willis: The answer is definitely "no." These tumors are restricted to the base of the bladder, the urethra, the prostatic region in the male, and the cervical-vaginal region in the female; and the urachus and fundus of the bladder are never involved except by extension.

CHRONIC INFLAMMATION OF OVIDUCT

CASE 12.—Contributed by Dr. A. O. Severance, Baptist Memorial Hospital, San Antonio.

Patient.—48 year old Negro woman.

Specimen.—Oviduct.

History.—The patient had intermittent lower abdominal pain for twenty years. Examination revealed a large right lower abdominal mass; the white blood cell count was normal with 4 per cent eosinophils; the red blood cells numbered 3,780,000, with hemoglobin 8.5 Gm. per 100 cc. of blood; there was marked anisocytosis and poikilocytosis. At operation the uterus was distorted by numerous leiomyomas. The ovaries were large and cystic. One tube was thick and fibrous; the other showed hydrosalpinx. Microscopic sections showed a Brenner's tumor of one ovary; a fibroma of the ovary; multiple leiomyoma of the uterus; hydrosalpinx of the fallopian tube; a corpus lutein cyst of one ovary; and the peculiar fallopian tube shown in your slide.

Diagnoses Submitted.—Hodgkin's disease, 14; chronic salpingitis (inflammation), 11; lymphosarcoma, 4; adenocarcinoma, 2; leiomyoma, 1; leiomyosarcoma, 1; myoblastoma, 1; mycosis fungoides, 1.

Dr. Willis: "Hodgkin's disease" holds sway, and "chronic salpingitis" runs a close second, and then come various other diagnoses. "Mycosis fungoides" I would have thought was a diagnosis for a dermatologist only.

(Lantern slide.) Here is this big, thick-walled tube seen in low power. Here is the folded lining of the tube with the connective tissue infiltrated by this abnormal cellular infiltration which extends away out through the submucosa and muscular coat of the tube right to its serous surface. You can see that it is rather a heterogeneous infiltration; the cells are variable in size and uniformly mixed with a good deal of fibrous tissue.

This is another part of the tube where the epithelium is flattened out, the result, no doubt, of the distention of the tube. There we have the cellular infiltration seen in greater magnification. You see connective tissue strands and muscle fibers of the tubal wall, and then perivascular collections of these rather variable cells. You can see here that some of the cells are large and irregular; perhaps you can even appreciate that some of them are multinucleated. In addition to that, however, there are plenty of cells, particularly around vessels, which are clearly of the ordinary chronic inflammatory type. There are lymphocytes and plasma cells and macrophages and a few eosinophils, and ordinary polymorphs as well, mixed up with this rather peculiar cellular infiltration.

This is a higher power view. This shows the variety of the cells—cells that are indistinguishable from lymphocytes and then larger cells with irregular and large nuclei, multinucleated cells. There is a cell, I think, in mitosis.

Here is a reticulin preparation to show that there is a widespread formation of collagenous or reticular tissue interspersed among this cellular infiltration.

Briefly then, there is infiltration—diffuse infiltration without any follicular pattern—of the wall of a fallopian tube, and the infiltrate is composed of the ordinary cells that might be expected in chronic inflammatory lesions, and then a lot of rather large, atypical looking cells. There is considerable fibrosis.

I think that the suggestion of Hodgkin's disease is fair and reasonable, but it would be a diagnosis difficult to sustain unless it were known that this patient had some enlarged lymph nodes or an enlarged spleen. I do not recall ever having heard of Hodgkin's disease of the fallopian tube even in cases of known Hodgkin's disease, and I would think it extraordinary that the predominant lesion should affect the fallopian tube and it should not be known that the patient had lymphadenopathy and splenomegaly. Hence I am hesitant indeed about accepting that diagnosis until we know a lot more about the hemopoietic system in this case.

The other alternative is a chronic inflammatory granulomatous thickening of the tube, and, of course, on general grounds this lesion might well be of that nature. We might even consider syphilis though there is no evidence of gummatous degeneration; and there is no predominance of plasma cells, which are commonly seen in tertiary lesions; and those large, multinucleated cells are not the kind of cells that appear in syphilis.

Now I shall throw out a squib. I wondered if possibly this might be lymphogranuloma inguinale? I do not know whether that can affect the fallopian tube. This lesion has some features of lymphogranuloma inguinale, which does contain giant cells of a peculiar type, with multiple nuclei, not quite like those of tubercle. I think it might be a good idea to do a Frei test on this person. We should certainly have a Wassermann test as well, of course. My feeling is that this is a chronic inflammatory infiltration of the tube with peculiar fibroblastic and macrophage cells with multiple nuclei. Those multinucleated cells did not impress me as being particularly like the "mirror-image" cells that are usually called Sternberg-Reed cells of Hodgkin's disease. Of course, in any lesion in which there are multinucleated cells you can cut cells in directions that make them look like mirror-image cells and you can be misled by appearances. I regard these as large proliferating fibroblasts which for some reason show these curious nuclear characters. I am prepared to admit, however, that if the exponents of Hodgkin's disease can show me enlarged lymph nodes and a spleen, this might be Hodgkin's disease of the tube. I think we want to know some more about this patient. I would not like to dogmatize as to what the disease is, but my own feeling is that it is chronic inflammatory.

Dr. Paul Brindley, Galveston: Please discuss the possibility of this being a metastasis from a scirrhous carcinoma of the stomach or intestinal tract.

Dr. Willis: Earlier today I had something to say about "linitis plastica," and I feel a little ashamed not to have thought of this possibility in the case of this tube. I think it is a distinct possibility, and further investigation that might be helpful would be to have sections made of that ovary which was removed, along with the tube, to see if it shows any evidence of similar infiltration of the Krukenberg type. You know that when gastric carcinomas reach the pelvis across the peritoneal cavity, they often colonize the ovary and produce the diffuse enlargement of a semigelatinous type which is called Krukenberg tumor. Perhaps this might be a peculiar type of diffuse "salpingitis plastica" induced by the presence of a

diffusely infiltrating secondary carcinoma. I admit that possibility.

GLIOMA

CASE 13.—Contributed by Lt. Col. C. J. Lind, Brooke General Hospital, Fort Sam Houston.

Patient.—37 year old white man.

Specimen.—Spinal cord tumor.

History.—This patient had a two year history of pain in the right arm related to coughing or sneezing. There was weakness in the legs with decreased sensation in the lower extremities and loss of bowel control.

Diagnoses Submitted.—Meningioma, 14; ependymoma, 9; astrocytoma, 3; spongioblastoma, 2; malignant meningioma, 1; medulloblastoma, 1; chordoma, 1; neurogenic sarcoma, 1; metastatic osteogenic sarcoma, 1; hemangioendothelioma, 1.

Dr. Willis: Meningioma holds first place, followed fairly closely by various gliomas. In fact, the total of gliomas outweighs the diagnosis of meningioma. There is a fairly even division between those who think this tumor arose from the meninges and those who think it arose from glial tissue. Then there are a few other odd suggestions which are not so likely.

(Lantern slide.) Here is a low power section of the tumor showing that it is composed of rather convoluted masses of tissue with interspersed connective tissue strands with blood vessels.

Here is another section at a higher magnification showing that these tumor masses are composed of rounded and elongate cells arranged rather indefinitely in places around blood vessels.

This area shows calcified granules, psammoma bodies, calcospherites. I suppose those who believe this to be a meningioma hold that these bodies support their diagnosis. I am not certain that they do so, because similar calcified bodies are seen in normal meninges in considerable quantities, and also in choroid plexus and pineal gland.

This section also shows the perivascular collections of these rounded and elongate cells of a rather indefinite type.

Here is a Masson preparation showing blood vessels with the connective tissue around, and then the surrounding tissue with the tumor cells—spindle cells for the most part, but more polyhedral in places.

Now, I have a confession to make: I have a lot of difficulty about some of these rather nondescript spinal canal tumors. I have seen spinal canal tumors that were plain, straightforward meningiomas, just like those we see in the cranial cavity, with typical whorled masses of cells and typical central calcospherites; I have seen typical neurinomas, Schwann cell tumors, with regimented groups of cells in the spinal theca; and I have seen gliomatous tumors in the spinal theca unattached to the spinal cord.

My own feeling about this tumor is that it probably is a glioma of the nature of an ependymoma. When I say that, I do not want to be misunderstood. The tumor that is commonly called an "ependymoma" does not necessarily contain ependyma-lined clefts. It is often an astrocytic type of glioma with a rather characteristic pattern, with the cells arranged radially around blood vessels. Those of you who are fortunate enough to possess a copy of that fine old book, Mallory's "Pathologic Histology," will see there a beautiful picture of these radially arranged cells of an astrocytic type around connective tissue strands or blood vessels. It is that type of tumor which, occurring chiefly in the fourth ventricle region, has been designated "ependymoma" even though it has no ependymal clefts in it. It is a bit presumptuous of me to step into this highly specialized field of neuropathology, but I feel that it is unwise to call those tumors "ependymomas" when they have no demonstrable ependyma in them.

Here again, I think a difficulty can be evaded by thinking of the original tissue. Glial tissue is glial tissue. The bulk of it consists of asteroid cells, big astrocytes with long processes. Some of it consists of smaller cells with fewer asteroid processes. Some of it consists of cells of a similar nature but lining the central cavities. But all of these cells are of the same motherhood; they all come from the same primordium; and the histologists tell us that there are transition forms between them even in the normal tissue. Ependyma cells and the subependymal astrocytes stain up with Cajal's gold-chloride-sublimate method just the same as ordinary astrocytes.

Gliomas are variable in their structure, and there is no sharp line of demarcation between an astrocytoma, an oligodendroglioma, an ependymoma, or a spongioblastoma or glioblastoma. These are all tumors of the same type, the same histogenesis, that is to say, but with a variable type of differentiation. Hence I do not think the quarrel over the name "ependymoma" is deeply significant, and I would like to restrict the term purely to those gliomas which do have clefts lined by ependyma.

To get back to the case in question, this does show a certain amount of perivascular arrangement of a radial fashion around blood vessels of these elongate cells, and I am inclined to think it may be a rather poorly differentiated type of glioma of the ependymal or perivascular type. I do not recall having seen a meningioma with just the structure of this tumor. I know that meningiomas are variable in their appearance, but in spite of those calcified grains, I am not keen on the diagnosis of meningioma here. I prefer the diagnosis of glioma, but I am open to conviction.

Dr. Mark C. Wheelock, Chicago: How do you explain the extramedullary location and clinical recovery of this patient if the lesion is an ependymoma?

Dr. Willis: There have been a lot of reported cases of ependymoma attached only to nerves and apparently not involving the spinal cord itself. Whether these are really ependymomas or only simulating them in structure, and whether they really are meningeal or nerve sheath in origin, is, of course, a matter of debate. I gather from Dr. Wheelock that his department would probably look upon them as meningeal or nerve sheath in origin rather than as gliomatous. I have admitted that I did not feel certain about this specimen, but neither would I feel confident about calling it a meningioma. The point is that I think the structure of this tumor is so uncertain, so indefinite, that one cannot interpret the histogenesis from the structure with certainty.

METASTATIC MALIGNANT MELANOMA

CASE 14.—Contributed by Lt. Col. C. J. Lind, Brooke General Hospital, Fort Sam Houston.

Patient.—72 year old white man.

Specimen.—Nodule in cerebrum.

History.—In January, 1947, a mass was removed from the left antecubital fossa. The original lesion recurred and the patient subsequently developed multiple scattered subcutaneous nodules. He was admitted to the hospital in a comatose state in August, 1948, and died in October. At autopsy only scar was noted at the site of the removal of the original lesion. Numerous tumor nodules were scattered diffusely throughout both lungs. There were tumor nodules in the spleen, adrenals, mesentery, kidney, bone, lymph nodes, and brain.

Diagnoses Submitted.—Malignant melanoma, 28; neurilemmoma, 2; neurofibrosarcoma, 2; fibrosarcoma, 1; sarcoma, 1.

Dr. Willis: The vote is overwhelming in favor of malignant melanoma.

(Lantern slide.) Here are the organs which, of course, you could not see before this meeting. The lungs were thickly studded with rather dark tumors throughout. The liver was similarly studded with black tumors, and here is the spleen and the adrenal.

Here is a photograph of the section that you examined, showing brain tissue at the margin, and then this spindle and pleomorphic cell growth arranged in bundles and groups in a rather irregular manner, with a certain amount of necrosis in places.

Here is a higher power view with again the same type of cells, rather pleomorphic, spindle-shaped, or multinucleated.

Here is a very high power view to show that the dark material in the cells really is a collection of brownish pigment granules. Of course, that brown pigment conceivably might be blood pigment taken up by tumor cells. The cells are not just wandering macrophages with pigment; they are genuine tumor cells and they are laden with pigment. You can see smaller amounts of pigment in some of these relatively nonpigmented cells. Indeed, there is a lot of pigment scattered through this tumor even though many of the cells appear relatively unpigmented.

I think there is no doubt that this is a malignant melanoma with wide dissemination from a primary growth of the skin that was originally excised from the elbow region.

Dr. Leo Lowbeer, Tulsa, Okla.: Do you have any explanation for the notoriously long interval of perhaps many years which may exist between the removal of a melanoblastoma of an eye and the occurrence of widespread hematogenous metastases? (The same goes for many cancers of kidney and thyroid.)

Dr. Willis: I have not. We can only say that nature exhibits these anomalies; that we see tumors which by all criteria are rapidly growing, active, malignant tumors which have disseminated, and then have lain dormant for long periods. This applies, of course, to all groups of tumors, some more notoriously than others. Carcinoma of the breast may lie dormant in this way for a long period. I have vividly in mind a case in which, following amputation of the breast, a woman remained well for fifteen years and then developed a cerebral tumor. Because of the long interval, it was thought to be a primary cerebral tumor, but when the neurosurgeon got this tumor out it was obviously a metastatic carcinoma. I cannot say why such a tumor lies dormant in this way for so long when, if it had been allowed to progress initially, it would have long since killed the patient. Conversely, of course, sometimes a malignant tumor not only lies dormant but it actually retrogresses spontaneously. There have been reported a number of cases of disseminated carcinoma of the breast and melanoma, too, which have spontaneously retrogressed and disappeared.

NEPHROBLASTOMA

CASE 15.—Contributed by Dr. J. M. Moore, Santa Rosa Hospital, San Antonio.

Patient.—3 year old child.

Specimen.—Abdominal mass.

History.—A five months history of progressive abdominal enlargement, constipation, and poor appetite was followed by onset of fever one week prior to examination. The examination showed a mass occupying the right half of the upper abdomen almost to the pelvis.

Diagnoses Submitted.—Nephroblastoma (Wilms' tumor), 27; sarcoma of kidney, 2; liposarcoma, 1; sympathicoblastoma, 1; malignant lymphoma (reticulum cell type), 1; carcinoma of kidney, hypernephroid type, 1; round cell sarcoma, 1.

Dr. Willis: This, you were told, was an abdominal mass from a 3 year old child. This abdominal mass was a kidney. The description was deliberately put rather indefinitely like that so that you might exercise your histologic diagnostic capacities without

being told the complete diagnosis to begin with. If you were told that this was a tumor of the kidney from a 3 year old child, you would scarcely need to look at the slide.

Most people did diagnose it as a nephroblastoma, and the people who called it a sarcoma of the kidney probably had the same tumor in mind, as the older nomenclature for Wilms' tumor was sarcoma, or adenosarcoma, or myosarcoma. This is one of those tumors that has had many aliases during its long career. Some people thought it was a sympathicoblastoma. Possibly they may be imbued with an idea emanating from the great Masson, that the ordinary Wilms' tumors of the kidney consist of nervous tissue. There were several other diagnoses which may have had the same idea in mind. Round cell sarcoma—that is perhaps synonymous with nephroblastoma in this voter's mind.

(Lantern slide.) Well, the slides will show the structure. It was a cellular, undifferentiated tumor, composed of mainly polyhedral or rounded cells with rather indefinite outlines, a few blood vessels running through it here and there, but mainly solid, white tumor tissue.

This slide shows the characters of the cells with their big nuclei and occasional mitotic figures; in fact, there are a number of mitotic figures but there is only one showing in this field.

This is a Wilms' tumor of the kidney, or embryonic tumor of the kidney, or as I prefer to call it, nephroblastoma. To make the terminology uniform we have neuroblastoma, sympathicoblastoma, medulloblastoma, retinoblastoma, and this is nephroblastoma, the malignant tumor of embryonic renal tissue. This tumor arises from tissue which has never become kidney, which has remained at the blastoma or embryonic level, and which goes on growing in that state. These "blastoma" tumors of childhood are the only ones that deserve the term embryonic. That term should never be applied to anaplastic tumors derived from adult tissue, a mistake that is often committed. I am sorry that in the nomenclature of this country, particularly, the term "embryonal" has crept in a great deal for certain tumors of the testis. I think it has rather confused the position by mixing up a lot of things that do not belong together. However, this is an embryonic tumor of the kidney or nephroblastoma, which arises from immature renal tissue.

This specimen shows little in the way of differential characters. It is just undifferentiated round-celled tissue, the kind that used to be called "sarcoma" of the kidney. But this tissue has, as we know from other specimens, potentialities much wider than you recognize in this round-cell growth. That round-cell growth can become tubular, glomerular or nonepithelial; it can become muscular and have striated muscle fibers developing from it. It is extremely primitive, plastic tissue—as primitive as the tissue that goes to form a kidney from the second or third fetal month.

It may interest some of you to realize that the formation of renal tissue is still in progress for sometime after birth. The kidney is not fully formed at birth. Embryogenesis is still in evidence, morphologically.

Here I show a section not from a postnatal kidney, but from a fetal kidney of about the fifth month. You see that its cortical structures are much less differentiated than those of the adult kidney. The tubules are relatively simple and straight. There is not much evidence of convolution yet, and the glomeruli are immature and consist of relatively simple structures with not much convolution and not much evidence of capillary vascularity. There is a lot of cellular material that is not yet differentiated, and this cellular nephrogenic zone of the cortex of the kidney is present in a recognizable degree for several months after birth. It goes on producing more renal tubules and glomeruli. You will notice also that the undifferentiated tissue is continuous with the interstitial tissue of the kidney. It is capable of differentiating not only into renal epithelial elements but into connective tissue and into smooth muscle, and by metaplasia in some of the tumors, into striated muscle.

These embryonic renal tumors consist of embryonic renal tissue, and this tissue can produce all that can happen in a kidney and a bit more in some cases, where striated muscle develops as a divergent product. The one that you have examined is composed of practically nothing but the primitive cellular, embryonic tissue, without any signs of differentiation. It is not a sarcoma. It is a nephroblastoma.

Anonymous Guest: Have you observed Wilms' tumor in adults?

Dr. Willis: Yes, I have. I have seen one case in a man aged 32. It was an unquestionable Wilms' tumor with embryonic cellular stuff differentiating into tubules, and into glomerular structures and into nonepithelial connective tissues of the mesenchyme type. This is an extreme rarity, but there have been other recorded cases. The older German literature contains several authenticated cases of embryonic tumors of the kidney seen in young adults. However, the literature in the pathology field today, and particularly in the urologic field, is liberally besprinkled with accounts of so-called "mixed tumors" of the kidney in adults, many of which merely exemplify the pleomorphism of adult carcinoma of the kidney. The writers have failed to appreciate how extremely pleomorphic ordinary hypernephroma can be. Tubular adenocarcinoma, solid masses of clear-celled carcinoma, diffuse sheets of spindle-cell growth mixed up

with the epithelial elements, or entirely divorced from them, highly pleomorphic-celled growth with multinucleated giant cells—all of these can be seen in one tumor or may be predominant in a particular tumor. I am sure that the majority of cases of so-called "mixed tumor of the kidney in adults" or alternatively "carcino-sarcoma of the kidney of adults," as they are often called, are merely instances of the great versatility of renal epithelium in its neoplastic state.

Anonymous Guest: Do Wilms' tumors occur outside the kidney?

Dr. Willis: I would say, "no." There is no evidence whatever that anything renal occurs outside the kidney. As far as I know, nobody has described fragmentary supernumerary kidneys anywhere. Of course, there can be the most diverse kind of congenital anomalies of the kidney, but they are still the kidneys. There can be kidneys in the pelvis, kidneys in the loin at different levels, horseshoe kidneys, partially divided kidneys, and unilateral kidneys, but they are always kidneys. As far as I know there is no evidence whatever to support the view that nephric tissue occurs anywhere but in kidneys, so I look askance on all of those tumor names which suggest that nephric tissue has occurred outside kidneys. I do not believe in "mesonephromas" or heterotopic renal tumors of the ovary or broad ligament that have been described. I think that these interpretations have been based on false resemblances, resemblances to glomeruli by convoluted papillary structures of other kinds.

INTERSTITIAL CELL TUMOR

CASE 16.—Contributed by Dr. R. A. Willis, Royal Cancer Hospital, London, England.

Patient.—45 year old man.

Specimen.—Tumor of testis.

History.—The patient had noticed a tumor of the testis for ten years, not increasing in size recently. Orchidectomy was performed. In the upper half of the testis there was an ovoid, well-circumscribed firm tumor 4 cm. in its main diameter, composed of grayish-brown tissue with hemorrhagic patches. The section submitted is representative; other sections showed similar structure. Frozen sections stained by Sudan 3 showed many fine droplets of fatty nature in the cells.

Diagnoses Submitted.—Teratoma, 5; teratocarcinoma, 8; embryonal carcinoma, 4; seminoma, 2; chorioepithelioma, 1; interstitial cell tumor, 6; interstitial cell carcinoma, 1; adrenal rest tumor, 5; perithelioma, 1.

Dr. Willis: I find it a little difficult to discuss some of these diagnoses because of the confusion caused by this term "embryonal" carcinoma. I am not clear what people mean when they say that, and I believe that different people mean different things. Some of them merely mean seminoma, the ordinary type; others mean anaplastic cellular tumors that they are not quite sure are seminomas; and other people mean teratomas with extensive cellular areas. Hence it is possible that the voters there really refer to different tumors. You will see that there is variable opinion as to the nature of this tumor. Most of the constituents of the testis are accounted for here.

(Lantern slide.) This shows the fibrous capsule which invested this well defined tumor. The tumor was composed, as you see, of a meshwork of cells with a good deal of intercellular spaces, a fine spongework of tissue with trabeculae of cells. Notice that the cells form solid trabeculae which do not contain any true lumens but which tend to develop into little cystic areas, and then there is a certain amount of hyaline collagenous connective tissue.

Here is the high power view showing the main characters of those cells. They are not well defined from one another; they show uniform rounded or oval nuclei; there are a few mitotic figures. Then you have to remember that these cells did contain considerable fatty material in the form of fine droplets.

We sectioned this tumor thoroughly. The section that you have is representative. We were naturally concerned to find out whether or not this did contain any other recognizable tissues and we were on the lookout for bits of cartilage and muscle and bone and other things that might prove that this was teratomatous, but none were found. What you have seen is representative of the entire tumor, as far as one can reasonably investigate a fairly large growth.

I am not sure what it is. I think it is probably an interstitial-cell tumor, the opinion being based on the fact that it is of uniform cytology throughout and that it has a considerable intracellular lipoid content, and on its long duration. Here is a tumor which lasted for ten years. We know that the interstitial cell tumors are relatively slowly growing, relatively benign tumors and that few malignant ones have been described. If this had been teratomatous, with that degree of lack of differentiation, I would have expected it to be a very malignant teratoma. When we see a teratoma composed largely of meshworks of undifferentiated polyhedral cells, we do not expect the patient to live long.

When we see benign teratomas of the testis, they are usually obvious teratomas with cysts lined by skin and all sorts of other highly differentiated extraneous tissues. So I exclude teratoma. Nor do I think it is seminoma, because it has none of the characteristics of a seminoma, really.

So, if we leave out seminoma as representing the tumor of seminiferous epithelium and we leave out teratoma as being the other common tumor of the testis, we are left with all the possible rare tumors, including those of the interstitial cells, and of the nonseminiferous epithelium of the collecting system of the testis, that is, of the Sertoli cells, the cells of

the rete testis, and the efferant ducts that lead to the epididymis. Now might this tumor be one of these? I think it might. We do not know much about the epithelial tumors of this collecting system. We recognize some of the tubular adenomas of the testis as being of Sertoli cell origin, but this tumor has nothing distinctly tubular about it, in spite of being a tumor of long duration; it does not look like the tubular adenomas that have been recorded.

It might be a rete cell tumor. After all, the rete is lined by cuboidal cells without any special characteristics, and if tumors grew from it they might grow in a meshwork or a papillary formation without forming anything distinctive in the way of tubules. I have seen a couple of tumors that I felt confident were rete cell carcinomas; they were more actively growing and aggressive tumors than this, and they had a more distinctly cystic and papillary structure, which is what one would expect from a rete cell tumor. However, as this is a peculiar tumor, I think we must consider that possibility carefully.

I think this tumor is either an interstitial cell tumor (I favor that) or possibly a rete cell tumor or collecting system tumor of a slowly growing type. I think the fat stains may be significant, but I do not know what else we can do to identify this fatty material or the cells producing it. I would remind you that some interstitial cell tumor of the testis produce androgenic hormone, but of course they do not usually produce anything clinically distinctive in an adult male. They only produce clinical effects when they occur in young children and lead to precocious growth and precocious puberty. It might have been helpful, perhaps, to have had this man's hormone assay carried out before and after removal of the tumor, but we did not know how interesting the tumor would be when it was removed.

Dr. D. J. Nollet, Naval Hospital, Corpus Christi: Would not the cells in an adrenal rest tumor (adenomatoid tumor) also have lipoid granules in the cytoplasm? If so, what would be the points differentiating this from interstitial cell tumors?

Dr. Willis: Yes, they would, but nobody has ever yet described adrenal rests in a testis. Adrenal rests have been seen along the spermatic cord as far down as the head of the epididymis, but never within the testis. Things that look like adrenal rests have been seen inside the ovary—normal or slightly abnormal corpora lutea—and a lot of mistakes have been made in interpretation because of that resemblance. True adrenal rests have been seen on the serous coat of the fallopian tube, but never on the ovary. The literature was exhaustively combed years ago by Glynn[4] and later on by G. W. Nicholson[6] in the search for true adrenal rests in the gonads. No single authenticated case was found, and I have not been able to find one in my own review of the literature. On that ground alone I would not accept any diagnosis of an adrenal tumor of the testis. In any case, I do not think that this tumor looks particularly like an adrenal tumor, the cells of which are usually large, obviously vacuolated, foamy looking cells like those of the adrenal cortex itself.

Col. Elbert DeCoursey, Washington, D. C.: Do you agree that Leydig cells evolve from reticulum cells although they look epithelial (as do other organs not from ectoderm)?

Dr. Willis: This problem as to whether to call these interstitial cells epithelial or not is a real one. When a ductless gland arises from an epithelial layer during development, as, for example, the pituitary gland or the thyroid, we are happy to call it epithelial, but when it does not develop from a definite surface epithelium, as, for example, the adrenal cortex, there is less justification for calling it epithelial. The adrenal cortex is a nice, compact looking structure, and it seems pedantic not to call it an epithelium. It has all the cellular arrangements of an epithelium, and yet it is never connected with any surface, even during development. The same applies to the scattered groups of interstitial cells of the testis. Although they look like an epithelium when we see them in a hyperplastic state or in tumors (and we usually regard these as epithelial tumors), strictly speaking this is a misnomer. We have evaded the difficulty so far by simply referring to "interstitial cell tumors." I think this question is pertinent, but I do not know that I can answer it to the benefit of posterity.

ADENOCARCINOMA, PROBABLY TERATOCARCINOMA, OF TESTIS

CASE 17.—Contributed by Lt. Col. C. J. Lind, Brooke General Hospital, Fort Sam Houston.

Patient.—55 year old white man.

Specimen.—Right testis.

History.—The patient had a traumatic injury to the right testis in 1917. In 1918 he developed mumps orchitis with drainage of a right scrotal abscess in 1919. In October, 1948, he developed progressive swelling of the right testis with spontaneous drainage of purulent fluid. The patient stated that this testis had always been large but had grown to the size of an orange during the previous month. The drainage sinus of the right scrotum, a portion of the scrotum, and the entire mass were removed.

Diagnoses Submitted.—Embryonal carcinoma, 13; teratocarcinoma, 9; adenocarcinoma, 4; seminoma, 4; teratoma, 1; adenocarcinoma of epididymis, 1; round cell sarcoma, 1.

Dr. Willis: I hope I will not offend a lot of people when I say that I do not think the diagnosis "embryonal carcinoma" helps much. It does not really tell us where the tumor came from, and I fear it has become a dumping ground for things we cannot recognize easily. It is convenient to have a dumping

ground, but it does not advance knowledge much.

By "teratocarcinoma" I presume is meant a teratoma of the testis in which malignant epithelial elements are prominent.

(Lantern slide.) You might like to see roentgenograms of the lungs before and after an interval of some months. Here is the earlier picture showing that the lungs were at that stage clear; multiple rounded tumors developed rapidly in the lungs. These are "cannon ball" metastases; but so might metastases from carcinoma of the breast or the prostate or the bowel be "cannon ball." The simile "cannon ball" is not helpful in determining the origin of the tumors. I mention that because I have seen an experienced clinician look at a roentgenogram like that and say, "This is clearly a case of cannon ball metastases in the lungs and this man must have a primary growth in the testis." He was right, but he was right only by luck, I am sure. I am sure radiographers would agree that this picture might just as well have been produced by metastases from any other kind of disseminating tumor.

There is the low power of the growth showing that it consists of folded masses of cellular growth with interspersed necrosis. The growth consists of masses of fairly obviously epithelial cells with distinct glandular tendencies, with little lumens here and there, around which the cells are orientated distinctly, so that there is little doubt that this is an "adenocarcinoma" as far as its morphology goes.

This is a higher power view showing much more distinctly the glandular character of this tumor with a folded papillary character in many parts. Here is a more diffuse area of the same cells. This is a higher power still showing mitotic figures in some of the more solid portions. Mitoses are plentiful, and this is an actively growing tumor.

Here we are confronted with the difficulty of deciding whether or not a relatively homogeneous tumor may be teratomatous in origin. I do not know how many sections were prepared from this tumor, but I would want a lot of sections prepared from it. I would want it sliced up into a series of slabs, and I would want representative sections from each slab of well preserved tissue prepared in search for other elements, such as cartilage or squamous stratified epithelium or respiratory or other types of glandular epithelium. As far as we can see in the sections available the whole growth consists of this adenocarcinomatous structure. Whether that is just simple adenocarcinoma of some component of the testis, the rete or the Sertoli cells or the efferent ducts, I do not know. It might well be part of a teratoma, but I do not think we have evidence enough to assert that that is the case. By the law of chance I would say it is likely that this is really a teratoma in which the predominant element is an actively growing epithelial glandular carcinoma, but I think a lot more research needs to be done on this before the pathologist could be confident about it, and even then he might not be able to say.

Dr. A. O. Severance, San Antonio: I saw cartilage in the section. Would this add support to the diagnosis of teratocarcinoma?

Dr. Willis: That certainly would add support to the view that it was a case of teratomatous tumor with predominant epithelial growth. In the sections that I studied I looked for cartilage and did not see any, but of course, where many hundreds of sections have been cut off a block it is possible for a tissue to appear in one section and not in another, and if cartilage was present, that would lend strong support to the most favored diagnosis.

BRONCHIAL CYST

CASE 18.—Contributed by Lt. Col. C. J. Lind, Brooke General Hospital, Fort Sam Houston.

Patient.—19 year old white boy.

Specimen.—Mediastinal mass.

History.—A routine roentgenogram revealed an asymptomatic abnormal mediastinal mass. At operation the mass was within the mediastinum. There was no definite connection to the bronchi. This mass was located in the left mediastinum overlying the left pulmonary artery and bronchus and within the arch of the aorta. Operative findings also indicated an extra lobulation of the upper lobe of the left lung. There was no anthracosis of this part of the lung. There was a vaguely described abnormality of the pericardial sac.

Diagnoses Submitted.—Bronchial cyst, 16; teratoma, 8; cyst in mediastinum, 5; congenital anomaly (hamartoma), 4; accessory lobe of lung, 3; congenital dysplasia of lung, 1.

Dr. Willis: I think most of these diagnoses really mean much the same thing. It certainly is a cystic structure in which bronchi or bronchial structures are to be found. I am not in favor of the diagnosis of "teratoma" because it seems to me that all of the tissue is bronchial and pulmonary in nature. The diagnoses "cyst of the mediastinum," and "congenital anomaly" are correct but noncommittal. It may well be an accessory lobe of the lung, which is the same thing, I suppose, as congenital dysplasia of the lung. So I think most of us are agreed that this is a congenital anomaly rather than a true tumor.

(Lantern slide.) There is the specimen, a rounded, cystic structure, which on section contains multiple loculi and some mucinous material.

Low power shows that the cavities are lined by epithelium and are separated by a certain amount of connective tissue in the walls.

Here we have a higher power view to show that the epithelium is of the respiratory type. It is a pseudostratified epithelium with a fringe of what I believe are definitely cilia. Then the surrounding tissue shows

smooth muscle, and blood vessels; and here is a sponge-work of irregular cavities clothed by cuboidal cells and containing macrophages in large numbers, just as we see in many examples of collapsed lung tissue. This might well be from a piece of collapsed lung which has become epithelialized and contains a lot of wandering macrophages taking up bronchial secretion or discharged blood. This is a higher power view showing the definite cilia on the surface.

I do not think there is any doubt from the description that this is indeed some sort of developmental anomaly in whi'' bronchial and pulmonary tissue is involved. I suppose that it was a bit of supernumerary lung tissue, possibly an accessory lobe of the lung which may have had a slender connection with the main lung. I cannot conceive of a supernumerary bit of lung tissue arising without some sort of bronchial connection developmentally. I therefore regard this as a little supernumerary lung lobe which has become cystic because of retained secretions. The question as to whether or not air had entered it is difficult to answer; as there was no pigment, no anthracosis of this area of lung, one may suppose that little air had entered.

Capt. H. F. Elmendorf, Fort Sam Houston: Have you ever seen an accessory lobe of the lung, surrounded by pleura, which functioned by osmosis of gases without direct communication to a bronchus?

Dr. Willis: No, I do not think I ever have.

(The cases being completed, the audience applauded.)

Lt. Col. Carl Lind, Brooke General Hospital. This is a marvelous program. I wish now to turn the meeting over to the president of the local society, Dr. Stout, to close.

Dr. B. F. Stout, San Antonio: I just want to say a few words. I think all of you must be tremendously impressed by the magnificent show of lantern slides which Colonel Bayliss has put on and which, as any of you who have ever attempted to make lantern slides know, took a large amount of work. I think we should publicly thank him for that, and also, of course, Colonel Lind and all of his officers and all of my colleagues, both in the local society and the state society. As a matter of fact, this is all a combination of teamwork.

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Royal Cancer Hospital, Fulham Road, London S. W. 3.

Tips to Parents on Television

"Don't ban television," is the advice of Elizabeth B. Hurlock, Ph.D., Philadelphia, to parents of school age children. Writing in the June issue of *Today's Health*, the child development consultant states that although school surveys have sounded a danger signal about the effects of television on youngsters, it is here to stay and children must learn to live with it.

"In recent months, surveys in several areas have shown that school grades drop when children have television sets in their homes—even when they regularly visit neighborhood homes to view the programs." She continued that the reports have shown that on the average children are spending as much time per day on television as on their lessons in school and at home.

Suggestions which she has offered to parents are as follows: (1) Instead of forbidding television, apportion the time the child may spend before the screen. (2) Help the child to select programs that are worth while and suitable for his age. (3) Whenever possible, watch the programs with the child and later, discuss their merits and faults. (4) Regard television as a form of education as well as amusement. (5) Encourage the child in other forms of play, especially those that require outdoor exercise and demand teamwork with other children. (6) Use television as a reward. The child may be forbidden to watch his accustomed program when his behavior falls below expected standards or when his school grades take a plunge. (7) Remember that television is a new toy and its novelty will wear off.

Heart in Action Photographed

Three-dimensional roentgenography of the heart and its chambers in action is described in the July 10 issue of *The Journal of the American Medical Association* by two Stockholm licentiates in medicine.

As reported by O. Axen and John Lind of the Karolinska Institute at Norrtulls Hospital, the photography is accomplished by means of synchronized roentgenograms in two planes at right angles. A special table permits the taking of ten pictures in one ray direction and ten at right angles in the course of eight seconds. A contrast of opaque material injected into the veins permits following the contrast medium through the different chambers of the heart. The method is of aid in establishment of normal standards in the living subject and affords increased opportunities for detection of abnormalities in the size or shape of the cavities of the heart and the great thoracic vessels.

SEVERE REACTIONS FROM INSECT STINGS

BOEN SWINNY, M. D., San Antonio, Texas

THE case which follows is an example of a not infrequent phenomenon of hypersensitivity, namely, anaphylactic shock, which may result from an insect sting or from the ingestion of a food (shrimp, for example), a drug (aspirin, penicillin), a serum (toxin-antitoxin), or an overdose of a pollen to which the patient is specifically highly sensitive.

F. C., a 42 year old San Antonio man who had always enjoyed excellent health, while trimming his hedge was stung on the forehead, on the back of the neck, and probably in the axilla by yellow jackets. Within three minutes he was unconscious and cyanotic, with involuntary urination, and coming from his mouth was frothy blood. Within five minutes he was dead. About three weeks prior a sting on the arm had resulted in massive swelling of the whole arm and hand.

The coroner gave as cause of death "natural cause unknown."

The Texas Bureau of Vital Statistics reported 7 deaths from insects in 1949. Anaphylaxis from insects is not generally known to the profession or to coroners; note that the cause of death in the quoted case was given as "natural cause unknown." It is probable that other deaths were attributed to heart disease or cerebral accidents and that the total number of sudden deaths due to insects may be as high as 20 or 30 in Texas each year.

Severe local or systemic nonfatal reactions reported to my office last year numbered 13. There are probably 200 or 300 of these each year in Texas.

When a person is found dead without other obvious cause, especially in the summer months, the possibility of cause by an insect sting must be considered, especially if there is a history of previous sting with severe reactions.

The majority of severe reactions have been to the yellow jacket. Bees have been second. Then follow the red wasp, the black wasp, and the scorpion.

MECHANISM OF REACTIONS

Severity of symptoms of anaphylactic shock are dependent on three factors: the antigenicity of the foreign substance, the quantity of the substance, and the degree of sensitivity of the subject. In the case quoted, there was probably a considerable amount of venom injected and the patient was so highly sensitive that death ensued so rapidly from massive emphysema, pulmonary edema with hemorrhage, and syncope that sufficient time was not allowed for all symptoms to develop or for any treatment to be administered.

Jex-Blake[7] stated that the portmortem examination of persons who have died of insect anaphylaxis shows the following pathologic conditions: (1) voluminous emphysema of the lungs, possibly with a frothy fluid exudate; (2) over-distention of the right side of the heart; and (3) splanchnic dilatation and hepatic engorgement.

Slower reactions (from smaller doses or in less sensitive persons) usually are first indicated within two or three minutes by dry, hacking cough, sense of constriction in the throat and chest, swelling and itching about the eyes, massive urticaria, sneezing and wheezing, a sense of uneasiness or even a sense of approaching death, a rapid pulse, a fall in blood pressure, pallor or blush of the skin, and, if the dyspnea becomes severe, cyanosis. At times, there are vomiting, abdominal cramps, involuntary urination and defecation, and loss of consciousness.

If the subject does not die in five or ten minutes, symptoms will begin to subside and comfort will return in two or three hours except, perhaps, for some urticaria which may persist a day or so.

TREATMENT

Local.—The ordinary local reaction requires no more than local treatment for relief: wet soda packs, household ammonia, or, newer and more effective for comfort, Theoforin ointment.

Systemic.—With the severe, dramatic, general reaction, if the physician gets to the patient in time, epinephrine 1:1,000 is the life-saving drug. If the sting is on an extremity, a tourniquet is applied and 0.5 cc. of epinephrine is injected into the site of the sting to slow down absorption and 0.5 or 1 cc. is injected into the other arm or leg. It is advisable to watch the blood pressure during the emergency and repeat the epinephrine until the pressure rises. Patients should be hospitalized if possible; if evidence of hemoconcentration is present, plasma should be given intravenously. If the patient survives for a few minutes after the sting, he is not likely to die and may be released within a few hours with no fear except of another sting.

There is much too great a tendency to rely on antihistaminic drugs in allergic disease. Anaphylactic shock is a dangerous accident and must be treated quickly with a rapidly acting drug. Epinephrine subcutaneously or intravenously (the dose intravenously is 2 or 3 minims) is the only drug to be considered in these emergencies.

PREVENTION

What can be done about future possible stings in the person who has had a systemic or severe local

Read before the Section on Medicine, State Medical Association of Texas, Annual Session, Fort Worth, May 2, 1950.

reactions? The answer lies in hyposensitization. The sensitivity is species specific. A patient may be sensitive to only black wasps and negative to yellow jackets, bees, ants, and other stinging insects. On the other hand, some patients are sensitive to more than one species.

Stinging insect venoms are now commercially available (Arlington Chemical Co., Yonkers, N. Y., and Hollister-Stier, Los Angeles). The physician must use care in testing, giving intradermal injections, at first with dilutions of 1:100,000, using only .01 or .02 cc. A wheal with erythema denotes sensitivity. The first treatment dose subcutaneously should be .10 cc. of the dilution that produces the first erythema without whealing. Serial dilutions are done and tests are done one at a time at twenty minute intervals until the proper dilution is found. After the first dose is given, each subsequent dose should be increased by .10 cc. over the preceding dose. Injections may be given twice weekly until eighteen doses are completed. Subsequent stings will result in only mild or local reactions.

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Medical Arts Building.

ABSTRACT OF DISCUSSION

DR. A. FORD WOLF, Temple: There is a significant number of people who have dangerous reactions to insect stings, and adequate protection can be achieved through desensitization to an extract of the specific insect in question. Unfortunately, however, the protection does not usually last long, and I believe it is advisable to give maintenance doses of the antigen until there is evidence that it is safe to stop them. Such evidence might consist of a person being in a different environment where a sting would be unlikely, or his having had repeated stings over a long period of time without untoward reaction.

The necessity of continuing treatment might be illustrated by one case. A young farmer in 1944 was given wasp desensitization because of several near fatal stings. He was cautioned not to stop treatment without consulting me. Treatment was soon taken over by his family physician and finally by the patient himself. During that time, and even for a year or so after treatment was stopped, he had little if any trouble from stings. However, they began causing more and more local swelling and then systemic symptoms such as weakness, pallor, dyspnea, and near collapse. He decided to reinstitute treatment when he got time. He never made it. He died within thirty minutes after a sting suffered while he was in the pasture some distance from the house. He did not have adrenalin with him. Although it was given at once after he got home, the pulmonary edema and emphysema were then irreversible.

I know of no fatal case in which there had not been some untoward reaction from previous stings. Thus, the patient is to some extent forewarned. In addition to providing desensitization, I advise hypersensitive patients, particularly ranchers and farmers, to have ampules of adrenalin and a syringe in their work truck, and I make sure they know how to use it.

A reaction can be produced by a different type of insect—the Triatoma. These insects are the so-called Mexican bed bugs or the "kissing bugs." They have been found to transmit Chagas' disease. Their habitat is the Southwest, Mexico, and South America, and they are apt to live in old stone houses. They are blood sucking insects with long mouth parts that curve backward under the thorax when not in use. These insects are wary, hard to catch, and emerge mainly at night. They are called kissing bugs because they prefer to drill for blood near the lips, especially of children.

One of the graduate nurses at our hospital had three or four episodes of severe edema of the face, throat, and ankle of unknown cause, occurring at night. She had to have adrenalin on one occasion and antihistamine drugs the other two times. Finally, we caught the culprit, and it was a Triatoma.

These insects usually feed upon other insects, but at times transfer their dietary interest to human beings. Generally, they produce only a painful bite with mild swelling and redness, but severe allergic reaction can occur.

Motion Picture Reviews Available

The second revised edition of a booklet entitled "Reviews of Medical Motion Pictures" has been released by the Committee on Medical Motion Pictures of the American Medical Association and is available at 25 cents per copy from the Order Department, American Medical Association, 535 North Dearborn Street, Chicago 10. Each of the 225 medical and health films available to the medical profession and reviewed in *The Journal* of the A.M.A. to January 1, 1950, is indexed according to subject matter and is described and evaluated by competent authorities.

More help is needed from tuberculosis specialists and from nutritionists in arriving at scientifically sound and practical minimum standards for relief allowances for the average tuberculosis patient and his family.—Ruth Taylor, Nat. Tuberc. A. Bull., Oct., 1949.

Medical Illustration Service

An information service on professionally trained medical illustrators and photographers is being established by the Academy-International of Medicine. Information on the illustrators and photographers, who will assist the profession in the preparation of all types of papers for publication, meetings, visual demonstrations, and exhibit material, will be available upon request. Doctors knowing of competent illustrators or photographers are requested to send their names and addresses to the Academy, 214 West Sixth Street, Topeka, Kan.

CASE REPORTS

OSTEOMA OF THE FRONTAL SINUS

HENRY S. MURPHEY, Col., M.C., U.S.A., Fort Sam Houston, Texas

OSTEOMAS are found in the frontal sinus more frequently than in any other paranasal sinus.[4] They have been considered to be a relatively uncommon growth by most authors,[3, 5, 18] although Ersher[8] stated that small osteomas occur with relative frequency. In recent years an increasing number of cases have been reported. Many are discovered only on routine roentgenogram of the frontal sinus.[2] The purpose of this paper is briefly to review this condition and to report 5 cases.

REVIEW OF CONDITION

Incidence.—In the Nose, Throat and Ear Department of the Kasr-El-Ainy Hospital in Cairo, Egypt, there were 18 cases of frontal osteoma diagnosed in 840,000 patients seen over a seven year period.[12] Dowling saw 5 cases in a military clinic among 7,000 patients over a two year period.[6] At St. Joseph's Mercy Hospital, Ann Arbor, there were 2 cases seen among 48,000 patients in twenty-one years.[20] Teed, in 1941, was able to collect 321 cases in the literature. He stated that although the condition is not rare, it is not common.

Etiology.—Sex appears to be a factor in the etiology. Males are much more commonly affected than females,[10, 15] in the ratio of about two to one.[20] Youth also appears to be a factor. The majority of cases appear in males less than 35 years of age.[17] The rate of development of the lesion varies in different persons. Usually the growth is slow. The rate of growth is more rapid in younger than in older persons.[17]

There are several theories concerning the cause of osteoma:

1. The embryologic theory[1] proposes that an osteoma arises from an embryonal rest of cartilaginous or periosteal[9] tissue. The frontal sinus originates from membranous bone. The ethmoid labyrinth originates from cartilage. These two structures are adjacent. Tumor growth tends to occur when two tissues of different origin come together in their development. Accordingly, one would expect to find the pedicle of the osteoma in the area of the frontal-ethmoid suture.

2. The traumatic theory[19] presumes that trauma is the inciting cause. However, it would seem that there must be a second factor also concerned, inasmuch as most men who have sustained blows on their heads do not subsequently develop tumors.

3. The infection theory[7] proposes that repeated infection may cause abnormal activity of the tissues with irritation of the periosteum and tumor formation. The pedicle of the tumor in some cases arises from the side or from the roof of the frontal sinus. The bone here may show an osteitis at the pedicle. Previously, it was thought that syphilis was one of the main causes of osteoma by virtue of periosteal irritation. This explanation is no longer tenable.

Actually, the etiology of osteoma is as little known as that of any other neoplasm. The majority of osteomas develop while there is a considerable growth activity in the bone. The frontal sinus is not found at birth. It is not completely formed until the age of 16 or 18. This peculiarity of growth may be of importance in the etiology of osteoma.

Pathology.—Osteoma is a benign tumor histologically,[13, 16] which may be considered mechanically or clinically malignant because of the tendency gradually to increase in size. It generally is slow growing. There is no evidence of abnormal mitotic cellular growth in the tumor. There is never any metastasis. However, slow extension may take place with encroachment on the adjacent tissues of the nose, eye, or brain. The encroachment on the orbit produces the deformity that most often causes the patient to seek treatment. The encroachment on the nose produces obstruction and deformity. The encroachment on the brain and its vital centers constitutes a threat to life.

There are four types of osteoma:[20] (1) the hard, ivory-like or eburnated osteoma, which is solid and has no haversian canals; (2) the medullated type, also hard and compact, which contains small haversian canals; (3) the spongy type, which contains connective tissue and has bony trabeculae; and (4) the mixed type, a mixture of any of the other three types.

The microscopic appearance is not pathognomonic of the disease. It may present normal bony tissue or hypertrophy of bony tissue. It may be solid with no haversian canals, or it may have many canals. It may be a combination of these structures, with a hard capsule and a soft medullated center. In some instances it may be of almost fibrous consistency.

Symptoms and Treatment.—The symptoms, when present, are those caused by a hard, bony, enlarging

Read before the Section on Eye, Ear, Nose, and Throat, State Medical Association of Texas, Annual Session, Fort Worth, May 2, 1950.

tumor in or near the frontal sinus region. There are no symptoms when the tumor is small and it does not obstruct drainage. Symptoms appear as obstruction occurs, displacement appears, or the adjacent tissues are invaded. It is unusual to have symptoms without some external sign.[14]

Surgical removal is the only curative form of treatment. The enlargement of the tumor can be followed

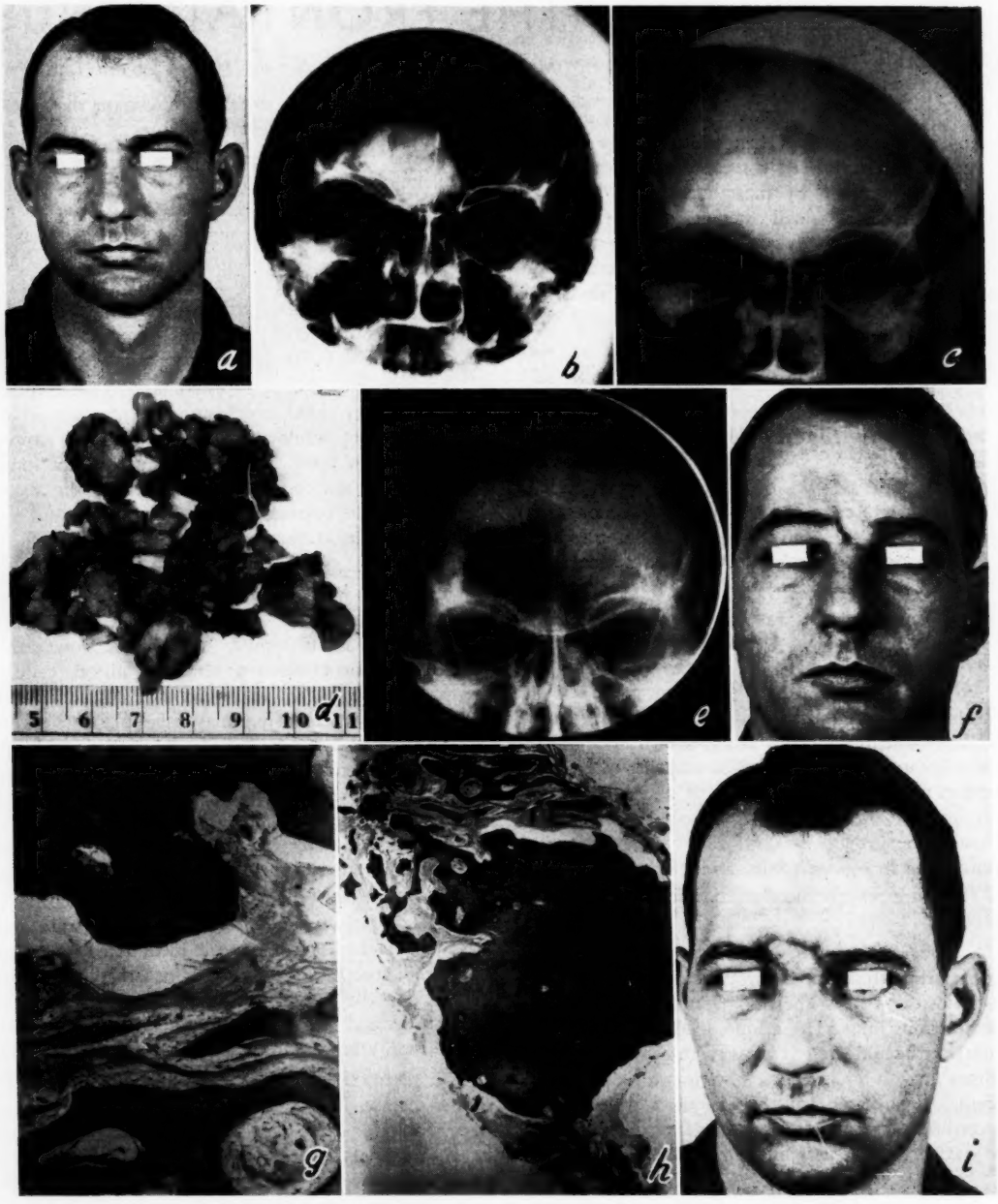

FIG. 1a. Case 1. a. Preoperative photograph of the patient.
b. Roentgenogram taken in 1941 showing an osteoma of the right frontal sinus with encroachment on the left frontal sinus.
c. Roentgenogram taken in 1947 showing an increase in the size of the osteoma.
d. Photograph of the osteoma after removal. The measure is metric.
e. Roentgenogram after surgical removal of the osteoma.
f. Photograph taken four months after surgery.
g. Photomicrograph of the osteoma. x 9.
h. Photomicrograph of the osteoma. x 67.
i. Photograph taken two weeks after plastic repair of the frontal deformity with cartilage implants.

by roentgenographic examination. If the tumor is small, no treatment is necessary. Spontaneous cessation of growth may occur.[11] Surgical removal is indicated if the tumor is producing any symptoms or if it is enlarging to a degree that it may become symptomatic.

CASE REPORTS

There were 18,076 patient admissions for all causes at Brooke General Hospital during the period from September, 1947, through August, 1948. Of these, 4,892 were females. Five patients with an osteoma of the frontal sinus were seen during this period. All of these patients were males. The ages of the patients when the tumor was first diagnosed were 18, 19, 23, 26, and 44.

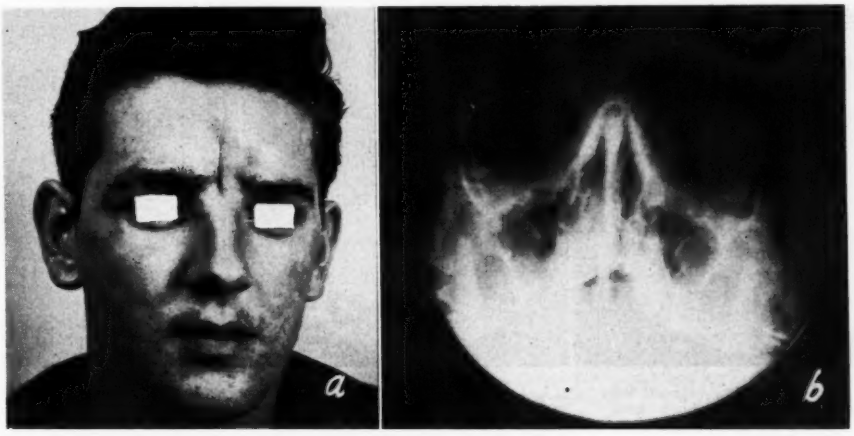

FIG. 2. Case 2. a. Photograph taken one and one-half years after the surgical removal of an osteoma of the frontal sinus.

b. Roentgenogram taken two years after the surgical removal of the osteoma of the frontal sinus in *a*.

CASE 1.—A well-nourished white man 30 years old was admitted to the hospital in 1947 because of tinnitus in the right ear and attacks of dizziness. Physical examination revealed a normal adult. There was no deformity of the head or face (fig. 1a). Past history revealed that he had been hospitalized in 1941 for headache. A roentgen-ray examination made at that time had revealed osteoma of the frontal sinus, of moderate size (fig. 1b). This growth involved both frontal sinuses, the right markedly, the left slightly. His headaches had stopped spontaneously, and he left the hospital with no further treatment. Roentgenograms made on the current admission revealed a moderately large tumor of the frontal sinuses, involving most of the right frontal sinus and also a considerable portion of the left frontal sinus. The posterior sinus plate appeared to be thin but intact (fig. 1c). Comparison with the roentgenograms taken in 1941 revealed some increase in the size of the tumor mass. Surgical removal of the osteoma was recommended because of the increasing size of the tumor.

Local procaine anesthesia was used, supplemented by sodium pentothal intravenously. An incision was made through the right eyebrow, down the nose a short distance, across the nose, and then up into the left eyebrow. This skin flap was elevated over the forehead. The anterior surface of the bone of the frontal sinuses was removed with a gouge. This bone was about 0.5 mm. thick. A hard, firmly fixed, lobulated, bony mass was exposed. The bony mass was removed piecemeal (fig. 1d). It completely filled the right frontal sinus except for a small portion superiorly, and a deep postorbital recess. There was no intersinus septum. The left frontal sinus was partially occupied. Superiorly, there was a mucocele of moderate size. The tumor extended down and was firmly fixed behind the left orbit in a deep recess of the sinus. Some mucous membrane remained here, with the formation of mucoceles. The posterior sinus plate was between 0.5 and 1.0 mm. thick. It was cracked unintentionally behind the right orbital ridge, and also behind the left orbit. There was one bleeding point in the bone .5 inch above the inner edge of the right supraorbital ridge. This was packed with bone wax. The bony mass was firmly fixed in the region of the right nasofrontal duct. This frontal-ethmoid region appeared to be the source of origin. Cigaret drains were left in the postorbital portion of each frontal sinus and the wound was closed.

The patient made an uneventful recovery. A depressed deformity resulted (fig. 1e and f). Some months later this deformity was improved with cartilage implants (fig. 1g).

The following is the pathologist's report of the tissue removed: "The aggregate mass of tissue weighs 18.3 Gm. Included is a fragment of dense bone containing numerous lacunae. The trabeculae are wide and branching. A few osteoblasts are noted along the bone fragments. The marrow spaces are filled with fibrous tissue showing no inflammatory reaction and no hematopoiesis. In spite of prolonged decalcification the larger bone masses still contain calcium" (fig. 1h and i).

During this period a diagnosis of Meniere's disease was made. The patient was desensitized with histamine. The tinnitus and vertigo stopped. The hearing had remained normal. He was discharged from the hospital cured.

Comment.—The origin of the tumor in this case appeared to be in the frontal-ethmoid region on the right. There was no evidence of infection or history of trauma. Accordingly, it is likely that the growth originated from an embryonal rest. Surgery was performed because of the growth in size of the tumor even though no symptoms had as yet developed. How-

ever, the increase in size with the resultant thinning of the posterior sinus wall suggested the probability that eventually the tumor would break through the sinus wall into the cranial cavity. This could lead to intracranial complications which would require surgery of a more extensive nature.

CASE 2.—A well-nourished white man 18 years old was admitted to the hospital in 1947 because of pain in the left knee caused by avulsion of the epiphysis of the left tibia. He also had a deformity of the forehead for which he was referred to the Ear, Nose, and Throat Service (fig. 2a). He stated that he had been well until August, 1945, when he was struck a resounding blow on the forehead by the edge of an automobile door. Two weeks after the injury he noticed that the swelling of his forehead was increasing in size. This swelling gradually increased until in January, 1946, he had a marked protuberance in the middle of his forehead, and the right upper lateral portion of his nose was beginning to swell. This protuberance increased in size so that in March he sought hospitalization in Philadelphia. The patient stated that there an osteoma was surgically removed from the right frontal sinus.

Physical examination at the later admission revealed a depression in the forehead superior to the nose, about 2 inches in diameter. There was a well-healed vertical midline scar about 2 inches long extending from the eyebrow level upward. The anterior frontal plate was absent in the area of the depression. There was a small, round, hard, nodule about .25 inch in diameter in the depression on the left side, about 1 inch above the eyebrow. This was firmly attached to the posterior bony wall. Although this mass was easily palpated, it did not show distinctly on a roentgenogram (fig. 2b). The patient was having no symptoms attributable to the tumor. He was advised to return in six months for reexamination. No further treatment was recommended. No apparent increase in growth was noted at later examinations.

Comment.—This patient gives a definite history of specific trauma incident to the diagnosis of osteoma.

CASE 3.—A well-nourished white man, a veteran of Mexican extraction, 23 years old, was admitted to the hospital in 1948 because of acute tonsillitis. He complained also of frontal headaches of several years' duration, intermittent, and of variable intensity. Physical examination was negative except for infected tonsils. A roentgen-ray examination of the frontal sinuses showed a small osteoma in the right frontal sinus. The headaches stopped spontaneously when the tonsillitis cleared. The osteoma was considered too small to be a factor in the headaches. Surgical removal was not recommended (fig. 3a).

CASE 4.—A well-nourished white male veteran 44 years old was admitted to the hospital in 1948 because of episodes of "tightness" in the back of his neck. These would persist for two or three days and then disappear. This was sometimes accompanied by vertigo, especially when he arose suddenly from the horizontal position. His symptoms had first occurred in 1946. At that time he had been treated for chronic ethmoid and maxillary sinusitis and was relieved of his symptoms. A roentgenogram revealed an opaque shadow occupying most of the left frontal sinus except for the superior portion. Surgical removal was not considered necessary because the tumor was not thought to be the cause of the headaches and because osteomas commonly do not grow any more in size after the patient reaches the age of 35 years. Examination at a later date was recommended in order to determine any increase in the growth (fig. 3b).

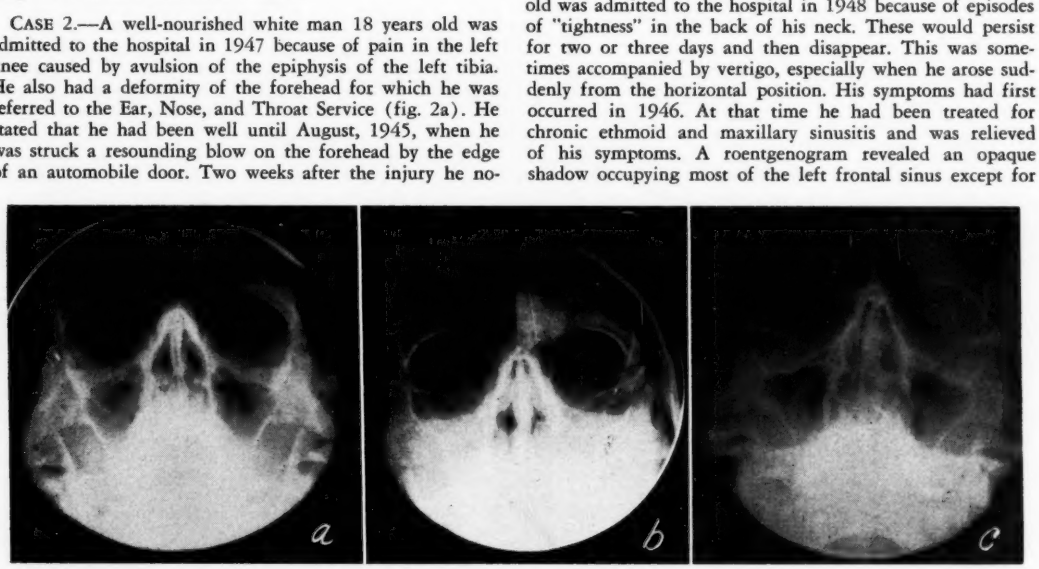

FIG. 3a. Case 3. Roentgenogram showing an osteoma of the right frontal sinus. b. Case 4. Roentgenogram showing an osteoma of the left frontal sinus. c. Case 5. Roentgenogram showing an osteoma of the right frontal sinus.

CASE 5.—A well-nourished white man 19 years old was admitted to the hospital in 1948 because of a total obstruction of the left naris. The patient had fractured the nose ten years previously. Since that time he had suffered repeated nasal trauma. One and one-half months prior to admission he was struck on the nose by a baseball. Roentgenograms showed a small opaque nodule, about 5 mm. in diameter, in the upper lateral portion of the right frontal sinus. It seemed to be attached by a slender pedicle to the superior wall of the sinus (fig. 3c). Surgical removal was not considered necessary because of the small size and the location of the osteoma. The nasal obstruction was cured by a submucous resection.

Comment.—Cases 3, 4, and 5 each show an osteoma which was an incidental finding in patients who had been admitted to the hospital for some other condition. Surgical removal of a small osteoma was not considered justifiable unless there was some symptom referable to it or unless an increase in growth indicated that the osteoma would become sympto-

matic. These last 3 cases would ordinarily not have been noticed as they were nonsymptomatic. It seems likely that osteoma may be a rather common tumor.

SUMMARY

Clinical data of 5 cases of osteoma of the frontal sinus have been presented. These were discovered among 18,076 hospital admissions which included 4,892 females during a one year period. The osteoma in 1 patient showed signs of increased growth and was removed. It appeared to originate in the region of the frontal-ethmoid suture. A second patient had a history of trauma as a possible inciting cause. His osteoma had been removed elsewhere, but there appeared to be a small recurrence. The 3 other cases occurred as incidental findings in patients admitted for other conditions. They were small, symptomless, and appeared to need no surgical treatment.

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ABSTRACT OF DISCUSSION

DR. M. P. SPEARMAN, El Paso: As the author states, many osteomas of the frontal sinuses are discovered only as the result of routine roentgenography of the sinuses. I should venture the opinion that "most" is more correct.

Certain symptoms, such as headache and dizziness, may accompany the condition. However, the same symptoms occur in a host of other diseases. Certain signs, such as diplopia and proptosis, may be noted in osteoma of the frontal sinus. Again, these signs may be found in a multitude of other afflictions. Therefore, the physician must see the tumor mass through roentgenography to diagnose surely. If annoying symptoms and signs be present, if the roentgen ray demonstrates the presence of a mass and, most particularly, shows serial increase in size, something must be done. It is well agreed that the osteoma is benign, localized, and extremely firm in structure. The treatment must be surgical removal since the tumor is not radioresponsive.

Colonel Murphey has written of a condition that is rare. He is fortunate to have seen 5 cases as many physicians see none in a lifetime. I have had but 2. Recently another Army physician has reported 5 more.* Knowledge of the rare is a comforting possession; it may be compared to having in hand a repeating rifle rather than a single shot musket. Therefore, I express my thanks to Colonel Murphey.

**King, N. E.: Osteoma of Frontal Sinus, Arch. Oto. 51:316 (March) 1950.*

Cancer Reprints Available to Physicians

The Medical and Scientific Library of the American Cancer Society now has a Package Lending Library of reprints on cancer covering the majority of articles published in the past ten years. This service is available to doctors and research workers upon request.

Reprints are sent postpaid by the national office with the request that they be returned within two weeks. Requests should be as specific as possible and general requests avoided to eliminate the mailing of impractical amounts of material. Physicians desiring to use the service may write American Cancer Society, Inc., 47 Beaver Street, New York 4, Attention of Medical and Scientific Library.

On an average weekday in February, 1949, there were about 4,569,000 persons from 14 to 64 years of age in the civilian population of the entire United States disabled by illness or some condition that prevented them from doing anything but occasional part-time work. This does not include persons between these ages in resident institutions or in the armed services. A rough estimate for these two categories . . . brings the total up to 5,310,000, or 5.4 per cent of the population between these ages.—Theodore D. Woolsey, Biostatistician, Pub. Health Rep., Feb. 10, 1950.

As a result of intensive studies during the past few years, evidence has accumulated which suggests that histoplasmosis —formerly believed to be a rare and usually fatal disease— also exists as a mild asymptomatic syndrome which is very prevalent in certain parts of the world. Although quite typical cases of clinical histoplasmosis are probably much more frequent than previously thought, the principal significance of the asymptomatic form is that in certain respects the disease so closely resembles tuberculosis as to be frequently confused with it.—Michael L. Furcolow, M. D., Pub. Health Rep., Nov., 1949.

INTRAVAGINAL ROENTGEN THERAPY OF CARCINOMA OF CERVIX

Preliminary Report on 14 Cases

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INTRAVAGINAL radiation therapy was started by Merritt[5] in 1920, followed by Erskine.[4] Their results have been spectacular. Erskine wrote that he believes this method could be the most valuable contribution to radiotherapy since the adoption of the international unit and that it is by far the most efficient method of destroying the primary tumor.

The principal objection to the method is the difficulty of exposing a field large enough to include the entire lesion and lateral fornices. Erskine used the four-bladed expanding speculum attempting to accomplish this end. He stated that the advantage of the multiple field method is that a large area can be exposed through a small introitus.

Bouslog[2] reported that he became dissatisfied with treatment of cancer of the cervix by radium and external radiation. He found the intravaginal cone therapy method to be one of the best procedures for giving controlled uniform radiation to the cancer cells throughout the pelvis. The intravaginal method makes treatment comparable to that of a local lesion such as cancer of the lip. Variation in the size of the vagina is compensated for by the size of the cone used. Bouslog and Wasson[8] used multiple overlapping fields. They also favored the perineal port, giving 1,000 r, measured in air.*

Elkins[3] stated the advantage of transvaginal roentgen therapy for carcinoma of the cervix is that lethal or near lethal doses may be delivered to the parametrial tissue without simultaneously applying destructive doses to the cervix. He stated further that the three year survival period was increased by transvaginal irradiation in cases classified in Schmitz group 4 cases. By the transvaginal method higher dosage can be delivered to a wider field. Taylor and Twombly[7] reported that their best results have been with intravaginal and external radiation combined with intracervical radium therapy.

Wasson wrote that the ultimate goal of radiologists is twofold: (1) to produce a dosage of radiation uniform in distribution throughout the pelvis and (2) to produce a dosage of adequate intensity to destroy the cancer cells. It is an essential premise that the cancer cells must have a lesser resistance than the tumor bed or surrounding tissue. The mechanical facilities to produce such uniform dosage of radiation are available. Wasson also stated that even in an apparently second stage cancer of the cervix of a grade 3 type, cancer cells already may have passed into the lymph nodes along the lateral walls of the pelvis, and might thereby account for some of the failures where the roentgen and radium therapy is inadequate in distribution. Wasson also often used the perineal port, which brings the lymphatic nodes as well as the other female organs more directly into the path of the roentgen rays.

Nolan and Stanbro[6] stated in their dosage calculations for intravaginal roentgen therapy that the one field treatment plan with optimum physical factors is limited, so far as dosage is concerned, by the reaction at the level of the external os, which represents a portal of entry. The maximum amount that can be given is 10,000 r, which is usually given with a lucite type of cone. This method does not provide enough energy to the lateral parametria to control growing cancer cells even when the amount of irradiation delivered at the portal of entry is carried to its maximum. However, it perhaps would provide a better field of irradiation in cases of carcinoma of the cervical stump where radium implantation is difficult. Nolan and Stanbro further stated that radiation distribution for the three field method of treatment seems to be as effective as that obtained from intracavitary or interstitial radium application and that intravaginal roentgen treatment carried to its maximum limit could be used successfully without radium.

According to Arneson[1] it is obvious that intravaginal roentgen rays can be used to increase effective radiation throughout the tumor bearing region. There are many additional uses for intravaginal roentgen rays in treating various types of lesions occurring in the vagina, some of which are primary and others metastatic, cervical, or corpus cancer. Arneson divided carcinoma of the cervix into three types: (1) the everted cauliflower type, which may fill the vagina and which is usually radiosensitive; (2) the infiltrating type, which causes diffuse enlargement of the cervix with the organ becoming hard and nodular and in which the prognosis is poor; and (3) the cratered lesion, in which there is loss of tissue, slough, and necrosis, and in which the prognosis is poor.

The cases presented in this paper are unselected and

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**Hereafter all r units referred to are measured in air.*

have been listed in chronologic order with follow-up examinations to the present. Cases 1 to 14 are reports of patients having carcinoma of the cervix who were treated with intravaginal roentgen therapy, while case 15 is presented primarily to show the effect of intravaginal cone therapy on benign cervical polyp. It was interesting to note how quickly infection started clearing with diminution of vaginal bleeding and easing of back pain. As infection cleared signs of healing became manifest.

The treatment used was as follows: 3,000 mg. hours of intracervical radium followed by intravaginal cone therapy. Bouslog's multiple port method with a metal cylinder was used. The factors were as follows: 200 kilovolts, 25 milliamperes, a filter of .5 mm. of copper and 1.0 mm. of aluminum, a target skin distance of 41 cm., and five ports: 4,000 r direct to the cervix, 4,000 r to each lateral fornix, 2,000 r along the anterior edge of the cervix directed toward the bladder region, and 2,000 r to the posterior edge of the cervix slightly toward the rectum. This was followed by external radiation using 220 kilovolts, 20 milliamperes, a Thoraeus filter, a 50 cm. skin target distance, five ports, and 1,500 to 2,000 r per port. Most of our Schmitz grade 2 cases responded quickly with healing of the cervical lesion and noticeable gain in weight.

TABLE 1.—*Summary of 14 Cases of Carcinoma of the Cervix Treated with Intravaginal Roentgen Therapy.*

Schmitz's Grade	Case No.	Age of Patient	Grade of Carcinoma	Duration of Disease (yr.)	Radium Intracervically (mg. hr.)	No. of Transvaginal Ports*	Panhysterectomy	Result
1	14	67	2	3½		1 lucite	Before treatment	Improved
2	1	40	2	2	3,000	3	1 yr. later	No carcinoma found. Died coronary occlusion
	5	39	3	3	3,600	5		Apparent recovery
	7	40	3	3	3,000	5		Apparent recovery
	8	42	4	3	3,500	5		Apparent recovery
	10	47	3	3		5	4 mo. before treatment	Improved, recurrent lesion in vaginal vault disappeared
	11	57	3	3	3,600	5		Improved
	9	61	2	2		5	1 mo. before treatment	Recurrent lesion in vaginal vault. Died uremia
3	12	38	4	3		5		Good response
	13	50	3	2		5		Good response
4	2	34	3	4		5		Improved
	4	47	4	4	3,600	5		Not improved
	3	68	4	1		5		Partial improvement. Died cardiac decompensation
	6	57	4	3		5		Partial improvement

*In each case the patient was also given external radiation of from 1,500 to 2,000 r per port by four ports.

CASE REPORTS

CASE 1.—J. S., a woman aged 40, with the diagnosis of an epidermoid carcinoma, grade 3, Schmitz grade 2, was given 3,000 mg. hours of intracervical radium June 22, 1946. The lesion was of the everted cauliflower type. Intravaginal cone therapy was started July 1, 1946, with the three port method giving 4,000 r per port. External radiation followed using four ports and 2,000 r per port.

On subsequent visits it was found that the cervix had healed. The uterus was freely movable and the adnexa were clear.

On November 12, 1946, the surgeon did a panhysterectomy. The pathologic report showed no evidence of carcinoma in either tubes or ovaries. A few residual anaplastic cells were found high in the cervical canal. The patient died of coronary occlusion in February, 1947.

CASE 2.—L. L. A., a woman aged 34, had a squamous cell carcinoma, grade 3, Schmitz grade 4, of four years' duration. External radiation was started May 31, 1946, with 1,500 r being given per port by four ports.

The patient returned with vaginal bleeding March 24, 1948. A large cratered lesion in the cervix was present with extensive sloughing and necrosis. Intravaginal cone therapy was started by the five port method with improvement.

The patient returned for the second series of intravaginal cone therapy November 6, 1948, at which time there was severe pain in the pelvis with a moderate amount of vaginal bleeding. The prognosis was poor. At last examination bleeding had subsided and infection was clearing in the cratered lesion with diminution of pain.

CASE 3.—A. H. H., a woman 68 years old, was seen February 27, 1947. She gave a history of bleeding for six months. A large cauliflower carcinoma of the cervix, which extended into the vaginal vault and was classified as Schmitz grade 4, was found on vaginal examination. The uterus and adnexa were fixed and the patient's general physical condition was poor. Serious cardiac decompensation with edema of the lower extremities was present.

Intravaginal cone therapy was started immediately, followed by external radiation of 2,000 r to all four ports. During the latter part of therapy, phlebothrombosis developed in the right leg with considerable edema and discoloration involving the entire extremity. In a short time this condition improved.

On subsequent visits the patient had regained considerable strength and her appetite had improved with a gain in weight. The cervix had healed; little change had occurred in the parametrium. It was thought that the progress of the carcinoma had been slowed down considerably. The cardiac condition became much worse and the patient died in July, 1947.

CASE 4.—F. W. D., a woman aged 47, had carcinoma of the cervix, grade 4. On January 29, 1945, 3,600 mg. hours of radium was applied, followed by external radiation through four ports using 1,500 r per port. Another series of external radiation with the same dosage was given March 21, 1947.

At this time vaginal examination revealed the uterus was fixed and stony hard masses could be felt in the parametrium. The patient was suffering considerable pain. Her appetite was good, and there was no weight loss.

On May 14, 1947, intravaginal cone therapy was tried with the hope of relieving some of the pain. The five port method was used. After this the patient was comfortable until February 27, 1948, at which time she complained of considerable pain in the left lower quadrant. External radiation was given again anteriorly using two ports, with 1,000 r being given per port. The patient's condition became progressively worse; some relief was obtained with teropterin.

The patient's last visit to the office was October 8, 1948, at which time noticeable loss of weight, anorexia, and severe pain were noted.

CASE 5.—C. M. B., a woman 39 years of age, had carcinoma of the cervix, grade 3, Schmitz grade 2, of the everted cauliflower type. On June 10, 1947, 3,600 mg. hours of radium was placed intracervically. This was followed by intravaginal cone therapy, which was started July 14. The five port method was used. Vaginal bleeding was present when intravaginal therapy was started. The vaginal bleeding ceased soon after the inception of vaginal cone therapy. External radiation was then given using the four port method and 2,000 r per port. Progressive improvement was noted on subsequent follow-up examinations.

By December 22, 1947, the cervix had completely healed; the uterus was small and freely movable, with the adnexa clear. The patient was examined again July 26, 1948, when no evidence of residual malignancy was noted. She had gained 14 pounds, appeared to be in excellent health, and was working every day.

CASE 6.—G. W. M., a woman aged 57, had a diagnosis of carcinoma of the cervix, grade 4, Schmitz grade 4. A large cauliflower lesion involved the entire cervix and extended into the vaginal vault with fixation of the uterus and extension into the parametrium. External radiation was started September 17, 1947, using four ports and 1,500 r per port. Intravaginal cone therapy was started November 10. Because of the small introitus it was necessary to use a 1.5 cm. cone and the five port method.

A follow-up examination on January 23, 1948, showed the fungating mass had nearly disappeared with partial healing of the cervix. The uterus was not movable. The adnexa felt stony hard on palpation.

Vaginal bleeding recurred May 19, 1948, at which time external radiation of 1,000 r was given through the perineal port. Follow-up visits showed improvement. Bleeding again ceased with diminution of pain.

On September 8, 1948, the patient had a recurrence of symptoms. External radiation was given again by the perineal port with a total dosage of 1,000 r. On October 2 the patient's condition was unusually good considering the extensive carcinomatous involvement.

CASE 7.—G. E. T., a woman 40 years old, had a carcinoma of the cervix, grade 3, Schmitz grade 2, of eight months' duration. The lesion had been treated with the cautery eight months prior to biopsy. On July 3, 1947, 3,000 mg. hours of radium was placed intracervically and followed by external radiation using four ports and 1,500 r per port. After this, intravaginal cone therapy was used by the five port method.

A follow-up visit of March 1, 1948, revealed the cervix to be completely healed; the uterus was freely movable and no palpable masses were present in the adnexa. On August 30, 1948, the cervix was smooth and normal in color. A rectal examination revealed the parametrium to be smooth.

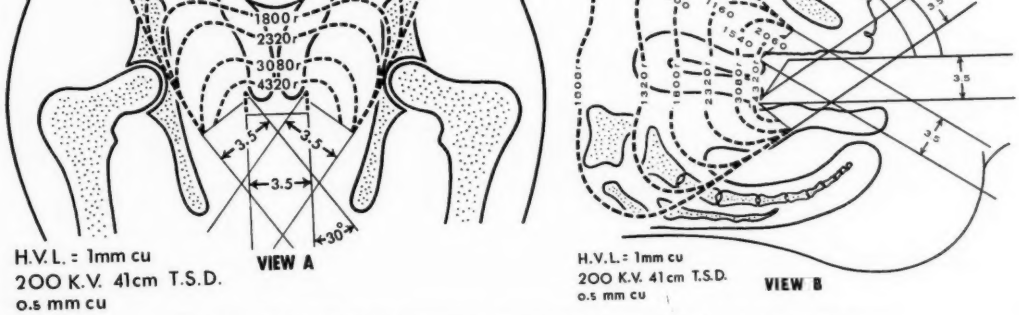

FIG. 1. Depth dose charts for intravaginal roentgen-ray therapy for carcinoma of the cervix.

CASE 8.—R. S., a woman aged 42, had a squamous cell carcinoma of the cervix, grade 4, Schmitz grade 2. On May 19, 1947, 3,500 mg. hours of radium was placed in the cervical canal, followed by external radiation by four ports using 1,500 r per port. Then intravaginal cone therapy with the five port method was given.

Observation of the patient February 6, 1948, revealed the cervix to be smooth; no redness was present and healing was complete. The uterus was freely movable and the adnexa were clear. Examination August 17, 1948, revealed the uterus to be small and freely movable; the adnexa were clear and there was no evidence of residual tumor. The patient had gained considerable weight.

CASE 9.—W. R. H., a woman 61 years old, had a carcinoma of the cervix, grade 2. A panhysterectomy was performed October 1, 1947. External radiation was started October 22, using four ports, 2,000 r being given per port. At completion of the series the vaginal vault was smooth in appearance. No palpable tumor masses were felt.

It was noted on follow-up examination June 21, 1948, that the patient had vaginal bleeding. A pelvic examination revealed malignant extension into the vaginal vault at the

site of closure. The parametrium felt hard and stony. Intravaginal cone therapy was started June 21, using five ports. Follow-up examination October 14 showed no evidence of vaginal bleeding. The vaginal mucosa was smooth in appearance. Rectal examination revealed induration and fibrosis involving the parametrium. At last examination there had been no bleeding, pain, or loss of weight. The patient died from uremia in February, 1949.

CASE 10.—A. F. B., a woman aged 47, with the diagnosis of carcinoma of the cervix, grade 3, Schmitz grade 2, had a panhysterectomy done March 3, 1947. External radiation therapy was then given using six ports and 633 r per port. On December 27, 1947, another series of external radiation treatments was started using 600 r per port by six ports, with the additional port 800 r to the perineum.

On May 29, 1948, the patient reported with profuse bleeding from the vaginal vault on the left side. The left adnexa were fixed and felt stony hard. Intravaginal cone therapy was started May 29; the multiple port method was used. After this, external radiation of 2,000 r per port by four ports was given.

On a follow-up visit October 10, 1948, no evidence of vaginal bleeding was revealed. The lesion had healed. Induration of the parametrium on the left side was still noticeable. At present there is no evidence of spotting. The patient is free from pain and has gained weight.

CASE 11.—F. H. R., a woman aged 57, had a squamous cell carcinoma of the cervix, grade 3, Schmitz grade 2. Prior to external radiation 3,600 mg. hours of radium was given intracervically. Five years previously the patient had had radium placed in the uterine cavity to produce an artificial menopause.

External radiation was started July 12, 1948, using four ports and 1,500 r per port. After this intravaginal cone therapy was given by the five port method. A follow-up visit September 30, 1948, revealed the cervix to be nearly healed and the patient had had no discomfort. The uterus was freely movable and the adnexa were clear.

CASE 12.—K. T., a woman 38 years old, had a carcinoma of the cervix of the large cauliflower type, grade 4, Schmitz grade 3, with extension into the parametrium on the right side. External radiation was started August 28, 1948, by four ports, with 1,500 r being given per port. Intravaginal cone therapy followed using the five port method.

A follow-up examination October 22, 1948, showed the cervix to be healed. The uterus was movable and small. A slight hardness and induration were present in the right broad ligament. The left adnexa were clear. The patient had had no pain and was gaining weight.

CASE 13.—R. L. S., a woman aged 50, had a carcinoma of the cervix, grade 3, Schmitz grade 3, a cauliflower lesion covering the external os and posterior lip of the cervix. The patient had a history of bleeding for eight months. She was extremely obese.

External radiation was started September 10, 1948, using four ports and 1,500 r per port. Intravaginal cone therapy followed using the five port method. Before the intravaginal therapy was half completed, the infection had cleared. The cauliflower mass had disappeared with evidence of early healing, and the back pain had disappeared. On December 1, 1948, examination revealed that the cervix had healed with slight residual induration of the parametrium on the left side.

CASE 14.—K. M., a woman aged 67, had a carcinoma of the cervix, grade 2, Schmitz grade 1. The patient had had a panhysterectomy three years previously. Carcinoma was found in the cervical canal upon microscopic examination of a section. Carcinoma had not been suspected preoperatively.

About August 15, 1948, the patient again started vaginal bleeding. Biopsy showed an epidermoid carcinoma, grade 3. The patient hemorrhaged severely several times and it was necessary to use Oxycel packs to stop bleeding. External radiation was started using four ports with 2,000 r per port. This treatment was followed by intravaginal cone therapy using a lucite cone and 4,000 r to the lesion in the vaginal vault. On follow-up examinations the lesion had disappeared with cessation of vaginal bleeding. Pain decreased and the patient's appetite increased.

CASE 15.—W. H. D., a woman 53 years old, originally reported to us June 9, 1947, for external radiation follow-up treatment after removal of an intracystic papillary adenocarcinoma, grade 3, of the right ovary; she also had had uterine fibroid tumors. The operation performed was a bilateral salpingo-oophorectomy and supracervical hysterectomy. The factors for external radiation were the four port method with 1,500 r being given per port.

On August 18, 1947, the patient reported with a bleeding cervical polyp which protruded about 2 cm. beyond the external os. The surgeon did not wish to remove this benign tumor mass. Intravaginal cone therapy was started August 18, with 4,000 r being given directly to the cervical polyp and external os. By November 11 the polyp had completely disappeared. Subsequent follow-up examinations showed no evidence of recurrence of the polyp or of cervical bleeding.

COMMENT AND SUMMARY

Unfortunately 2 of the patients reported (cases 9 and 10) who had carcinomas classified as Schmitz grade 2 rather than Schmitz grade 1 had had panhysterectomies. The carcinomas extended into the vaginal vault after surgery. Intravaginal therapy was a definite aid in checking the growth of the residual neoplasm.

We believe intravaginal cone therapy has been an important adjunct in helping improve our results in the treatment of carcinoma of the cervix. Patients with carcinomas classified as Schmitz grade 2 have responded well to this method of therapy. The local lesions in Schmitz grade 4 cases have healed with general improvement of the patient's condition. At times it became necessary to repeat the intravaginal cone therapy three or four months later and again clinical improvement was obtained. This method of radiation has something to offer in palliation and probable extension of life in Schmitz grade 4 cases, although it is too early for us to know how many can be salvaged.

REFERENCES

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2. Bouslog, J. S.: Intravaginal Radiation Therapy, Am. J. Roentgenol. *57*:665-670 (June) 1947.
3. Elkins, H. B.: Preliminary Report on Transvaginal X-Ray Treatment of Carcinoma of Cervix, J. Iowa M. Soc. *37*:196-198 (May) 1947.
4. Erskine, A. W.: Expanding Speculum for Transvaginal Roentgen Therapy, Am. J. Roentgenol. *42*:423-427 (Sept.) 1939.
5. Merritt, E. A.: Possibilities of Intravaginal X-Ray with Description of Technique, General Radiology *2*:29-32.
6. Nolan, J. F., and Stanbro, W.: Dosage Calculations for Various Plans of Intravaginal X-ray Therapy, Radiology *49*:462-471 (Oct.) 1947.

7. Taylor, H. C., Jr., and Twombly, G. H.: Cancer of Cervix; Study of Effect of Interstitial Radon Needles as Compared with Roentgen Therapy Given Through Intravaginal Cones, Am. J. Roentgenol. 56:513-522 (Oct.) 1946.

8. Wasson, W., and Greening, R.: Further Observations with Intravaginal Roentgen Therapy of Cancer of Female Pelvis, Radiology 29:452-460 (Oct.) 1947.

515 Medical Arts Building.

ABSTRACT OF DISCUSSION

DR. GEORGE TURNER, El Paso: The conception and beginning of the practical application of intravaginal therapy by Merritt and its progress with rather universal acceptance has been well presented. The advent of shockproof therapy equipment paved the way for more precise and exact methods of technical application.

Since 1935 intravaginal radiation has been used as a part of radiation therapy in the treatment of all stages and grades of cancer of the cervix as well as certain other malignant lesions in the vaginal tract and pelvis. A total of 158 cases have been treated using this approach as a part of treatment.

The intravaginal fields used are anterior and posterior, somewhat overlapping, on either side of the cervix in the vaginal fornix; with the patient on her side. The side position is preferred because of the patient's comfort and because it provides a closer approach to the parametria in stages 1 and 2, when the parametrium is brought closer to the cone outlet. The central cervix-uterine, vesicovaginal, and rectovaginal fields are omitted except occasionally in stages 3 and 4 in which treatment is dictated by the condition.

The size of the cone is controlled by the size of the vaginal tract. A selection is made by examination, using the largest size that can be introduced without great discomfort or irritation to the lesion. Overstretching of friable tissue and bleeding should not be caused, and the cone outlet should always enter the vaginal tract to a depth well beyond the vulva.

The whole plan in the radiation treatment of cervical cancer includes external and intravaginal roentgen ray and radium to the cervix and uterus. External and intravaginal roentgen ray is given before radium application to ameliorate infection and to stop the progress of metastasis as early as possible.

NEWS

COMING MEETINGS AND CLINICS

State Medical Association of Texas, Galveston, May 1-2, 1951. Dr. William M. Gambrell, Austin, Pres.; Tod Bates, 700 Guadalupe St., Austin, Executive Secy.

American Medical Association, Cleveland, Dec. 5-8, 1950. Dr. Elmer L. Henderson, Louisville, Ky., Pres.; Dr. George F. Lull, 535 North Dearborn St., Chicago 10, Secy.

NATIONAL AND REGIONAL

American Academy of Allergy, New York, Feb. 5-7, 1951. Dr. Theodore L. Squier, Milwaukee, Pres.; Mr. James O. Kelley, 208 E. Wisconsin Ave., Milwaukee 2, Executive Secy.

American Academy of Dermatology and Syphilology, Chicago, Dec. 9-14, 1950. Dr. Earl D. Osborne, Buffalo, N. Y., Pres.; Dr. John E. Rauschkolb, 25 Prospect Ave. N. W., Cleveland 15, Secy.

American Academy of General Practice, San Francisco, March 19-22, 1951. Stanley R. Truman, Oakland, Calif., Pres.; Mr. Mac F. Cahal, 406 W. 34th St., Kansas City 2, Executive Sec'y.

American Academy of Neurological Surgery. Dr. William S. Keith, Toronto, Canada, Pres.; Dr. T. C. Erickson, 1300 University Ave., Madison 5, Wis., Secy.

American Academy of Ophthalmology and Otolaryngology, Chicago, Oct. 8-13, 1950. Dr. Conrad Berens, New York, Pres.; Dr. W. L. Benedict, 100 First Ave. Bldg., Rochester, Minn., Secy.

American Academy of Pediatrics, Chicago, Oct. 16-19, 1950. Dr. Edward B. Shaw, San Francisco, Pres.; Dr. C. G. Grulee, 636 Church St., Evanston, Ill., Secy.

American Association for Thoracic Surgery, Atlantic City, N. J., April 16-18, 1951. Dr. Edward J. O'Brien, Detroit, Pres.; Dr. Brian Blades, 901 23rd St. N. W., Washington, D. C., Secy.

American Association of Genito-Urinary Surgeons, Skytop, Pa., May 16-18, 1951. Dr. Roger C. Graves, Boston, Pres.; Dr. Norris J. Heckel, 122 S. Michigan Ave., Chicago 3, Secy.

American Association of Obstetricians, Gynecologists, and Abdominal Surgeons, Hot Springs, Va., Sept. 7-9, 1950. Dr. S. A. Cosgrove, Jersey City, N. J., Pres.; Dr. L. A. Calkins, University of Kansas Medical Center, Kansas City 3, Secy.

American Cancer Society, New York, Oct. 27, 1950. Dr. Alton Ochsner, New Orleans, Pres.; Mr. M. R. Runyon, 47 Beaver St., New York, Exec. Vice-Pres.

American College of Chest Physicians, San Francisco, March 19-22, 1951. Dr. Joseph C. Placak, Cleveland, Pres.; Mr. Murray Kornfeld, 500 N. Dearborn St., Chicago 10, Executive Secy.

American College of Physicians, St. Louis, April 9-13, 1951. Dr. William S. Middleton, Madison, Wis., Pres.; Mr. E. R. Loveland, 4200 Pine St., Philadelphia 4, Secy.

American College of Radiology. Dr. Arthur W. Erskine, Cedar Rapids, Iowa, Pres.; Mr. W. C. Stronach, 20 N. Wacker Drive, Chicago 6, Executive Secy.

American College of Surgeons, Boston, Oct. 23-27, 1950. Dr. Frederick A. Coller, Ann Arbor, Mich., Pres.; Dr. Paul B. Magnuson, 40 E. Erie St., Chicago 11, Secy.

American Congress of Physical Medicine, Boston, Aug. 28-Sept. 1, 1950. Dr. Earl C. Elkins, Rochester, Minn., Pres.; Dr. Richard Kovacs, 2 E. 88th St., New York 28, Secy.

American Dermatological Association. Dr. Charles C. Dennie, Kansas City, Mo., Pres.; Dr. L. A. Brunsting, 102 2nd Ave., S. W., Rochester, Minn., Secy.

American Gastro-Enterological Association, Atlantic City, June 8-9, 1951. Dr. John G. Mateer, Detroit, Pres.; Dr. Dwight L. Wilbur, 655 Sutter St., San Francisco, Secy.

American Gynecological Society, New York, May 7-9, 1951. Dr. Frederick Irving, Boston, Pres.; Dr. Norman F. Miller, 1313 E. Ann St., Ann Arbor, Mich., Secy.

American Hospital Association, Atlantic City, N. J., Sept. 18-21, 1950. Mr. John Hatfield, Philadelphia, Pres.; Mr. George P. Bugbee, 18 E. Division St., Chicago, Executive Secy.

American Laryngological, Rhinological, and Otological Society. Dr. Robert C. Martin, San Francisco, Pres.; Dr. C. S. Nash, 277 Alexander St., Rochester 8, N. Y., Secy.

American Neurological Association. Dr. Wilder G. Penfield, Montreal, Canada, Pres.; Dr. H. Houston Merritt, 710 W. 168th St., New York 32, Secy.

American Ophthalmological Society. Dr. Parker Heath, Boston, Pres.; Dr. M. C. Wheeler, 30 W. 59th St., New York 19, Secy.

American Orthopedic Association. Dr. R. W. Johnson, Jr., Baltimore, Pres.; Dr. C. Leslie Mitchell, Henry Ford Hospital, Detroit 2, Secy.

American Pediatric Society. Dr. Bronson Crothers, Boston, Pres.; Dr. Henry G. Poncher, 1819 W. Polk St., Chicago 12, Secy.

American Proctologic Society. Dr. Louis E. Moon, Omaha, Pres.; Dr. W. Wendell Green, 1838 Parkwood Ave., Toledo 2, Secy.

American Psychiatric Association. Dr. John C. Whitehorn, Baltimore, Pres.; Dr. R. Finley Gayle, 501 E. Franklin St., Richmond, Va., Secy.

American Public Health Association, St. Louis, Oct. 30-Nov. 3, 1950. Dr. Lowell J. Reed, Baltimore, Pres.; Dr. R. M. Atwater, 1790 Broadway, New York 19, Secy.

American Society of Anesthesiologists, Houston, Nov. 7-10, 1950. Dr. Rolland J. Whitacre, East Cleveland, Ohio, Pres.; Dr. J. E. Remlinger, Jr., 188 W. Randolph St., Chicago, Secy.

American Society of Clinical Pathologists, Chicago, Oct. 17-21, 1950. Dr. James B. McNaught, Denver, Pres.; Dr. Clyde G. Culbertson, Indiana University School of Medicine, Indianapolis, Secy.

American Surgical Association, Washington, D. C., April 11-13, 1951. Dr. Samuel C. Harvy, New Haven, Conn., Pres.; Dr. Nathan Womack, University of Iowa, Iowa City, Secy.

American Urological Association, Chicago, May 21-24, 1951. Dr. Thomas D. Moore, Memphis, Tenn., Pres.; Dr. C. H. deT. Shivers, 121 S. Illinois Ave., Atlantic City, N. J., Secy.

Association of American Physicians and Surgeons, Houston, Oct. 5-7, 1950. Dr. Joseph C. Bunten, Pres.; Mr. Harry E. Northam, 360 N. Michigan Ave., Chicago 1, Executive Secy.

International College of Surgeons, U. S. Chapter, Cleveland, Oct. 31-Nov. 3, 1950. Dr. H. W. Meyerding, Rochester, Minn., Pres.; Dr. Arnold S. Jackson, Jackson Clinic, Madison 5, Wis., Secy.

National Tuberculosis Association. Dr. R. D. Thompson, La Vina, Calif., Pres.; Dr. H. Stuart Willis, 1790 Broadway, New York 19, Secy.

Radiological Society of North America, Chicago, Dec. 10-15, 1950. Dr. Warren W. Furey, Chicago, Pres.; Dr. D. S. Childs, Medical Arts Bldg., Syracuse 2, N. Y., Secy.

Southern Medical Association, St. Louis, Nov. 13-16, 1950. Dr. Hamilton W. McKay, Charlotte, N. C., Pres.; Mr. C. P. Loranz, 1020 Empire Bldg., Birmingham, Ala., Secy.

Southern Psychiatric Association. Dr. R. Finley Gayle, Jr., Richmond, Va., Pres.; Dr. Newdigate M. Owensby, Medical Arts Bldg., Atlanta, Ga., Secy.

Southern Surgical Association, Hollywood, Fla., Dec. 5-7, 1950. Dr. G. V. Brindley, Temple, Pres.; Dr. John C. Burch, 2112 West End Ave., Nashville, Tenn., Secy.

Southwest Allergy Forum, San Antonio, April 8-10, 1951. Dr. J. H. W. Rouse, San Antonio, Pres.; Dr. Boen Swinny, 224 Medical Arts Bldg., San Antonio 5, Secy.

Southwest Regional Cancer Conference, Fort Worth, Nov. 15, 1950. Secy., 209 Medical Arts Bldg., Fort Worth.

Southwestern Medical Association, Phoenix, Ariz., Oct. 26-28, 1950. Dr. I. J. Marshall, Roswell, N. Mex., Pres.; Dr. W. W. Schuessler, 1415 First National Bank Bldg., El Paso, Secy.

Southwestern Surgical Congress, Denver, Sept. 25-27, 1950. Dr. Thomas G. Orr, Kansas City, Pres.; Dr. C. R. Rountree, 210 Plaza Court, Oklahoma City 3, Secy.

Tri-State Medical Assembly, Shreveport, La., Sept. 29-30, 1950. Dr. Charles Gowen, Shreveport, Pres.; Dr. John Walter Jones, 401 E. Fifth St., Texarkana, Secy.

United States-Mexico Border Public Health Association, Los Angeles, April 4-6, 1951. Dr. Luis Arriaga Velez, Chihuahua, Mexico, Pres.; Dr. M. F. Haralson, 314 U. S. Court House, El Paso, Secy.

STATE

Texas Academy of General Practice, Fort Worth, Sept. 25, 1950. Dr. H. T. Jackson, Fort Worth, Pres.; Dr. W. P. Higgins, Jr., Medical Arts Bldg., Fort Worth, Secy.

Texas Air-Medics Association, Galveston, April 30, 1951. Dr. D. P. Laugenour, Dallas, Pres.; Dr. C. F. Miller, 906 Medical Arts Bldg., Waco, Secy.

Texas Association of Obstetricians and Gynecologists, Galveston, Feb. 1951. Dr. Howard Smith, Marlin, Pres.; Dr. George F. Adam, 4115 Fannin, Houston, Secy.

Texas Chapter, American College of Chest Physicians, Galveston, April 30, 1951. Dr. David McCullough, Kerrville, Pres.; Dr. Henry R. Hoskins, 514 Medical Arts Bldg., San Antonio, Secy.

Texas Club of Internists. Dr. Ghent Graves, Houston, Pres.; Dr. Hatch W. Cummings, Jr., Houston, Secy.

Texas Dermatological Society, Galveston, April 30, 1951. Dr. J. G. Brau, Dallas, Pres.; Dr. W. Harris Connor, 601 Medical Arts Bldg., Houston, Secy.

Texas Diabetes Association, Galveston, April 29, 1951. Dr. B. F. Smith, Houston, Pres.; Dr. W. N. Powell, W. Ave. F, Temple, Secy.

Texas Division, American Cancer Society, Galveston, Nov. 6, 1950. Mr. Frank C. Smith, Houston, Pres.; Mr. J. Louis Neff, 2307 Helena St., Houston 6, Executive Director.

Texas Heart Association, Galveston, April 30, 1951. Dr. George W. Parson, Texarkana, Pres.; Miss Roberta Miller, 411 Reserve Loan Life Bldg., Dallas, Executive Secy.

Texas Hospital Association, San Antonio, April 24-26, 1951. Mr. Roy Wilmesmeier, Houston, Pres.; Mrs. Ruth Barnhart, 2210 Main St., Dallas, Secy.

Texas Neuropsychiatric Association, Mineral Wells, 1950. Dr. A. T. Hanretta, Austin, Pres.; Dr. David Wade, 510 Capital National Bank, Austin, Secy.

Texas Orthopedic Association, Galveston, April 30, 1951. Dr. Louis Breck, El Paso, Pres.; Dr. Margaret Watkins, 3629 Fairmount St., Dallas, Secy.

Texas Pediatric Society, Fort Worth, Oct. 6-7, 1950. Dr. J. E. Ashby, Dallas, Pres.; Dr. M. C. Carlisle, 1410 Austin Ave., Waco, Secy.

Texas Public Health Association, Galveston, Feb. 18-21, 1951. Mr. Barnie A. Young, Austin, Pres.; Mr. Earle W. Sudderth, Dallas County Health Department, Court House, Dallas, Executive Secy.

Texas Radiological Society, Galveston, Jan. 19-20, 1951. Wayne D. Ramsey, Abilene, Pres.; Dr. R. P. O'Bannon, 650 Fifth Ave., Fort Worth, Secy.

Texas Railway and Traumatic Surgical Association, Galveston, April 30, 1951. Dr. Joe Gandy, Houston, Pres.; Dr. W. F. Parsons, First National Bank Bldg., Fort Worth, Secy.

Texas Rheumatism Association, Houston, Dec. 8, 1950. Dr. Moise D. Levy, Jr., Houston, Pres.; Dr. Robert H. Mitchell, 210 Medical Arts Bldg., Fort Worth, Secy.

Texas Society for Mental Health, Galveston, March 8-9, 1951. Dr. Hamilton Ford, Galveston, Pres.; Mrs. Elizabeth F. Gardner, 1617 Watchhill Road, Austin 21, Executive Secy.

Texas Society of Anesthesiologists. Galveston, April 30, 1951. Dr. Russell Bonham, Houston, Pres.; Dr. Werner Hoeflich, 2301 Reba, Houston, Secy.

Texas Society of Gastroenterologists and Proctologists, Galveston, April 30, 1951. Dr. Carl G. Giesecke, San Antonio, Pres.; Dr. John S. Bagwell, Medical Arts Bldg., Dallas, Secy.

Texas Society of Ophthalmology and Otolaryngology, Dallas, Dec. 8-9, 1950. Dr. V. R. Hurst, Longview, Pres.; Dr. John L. Matthews, 929 Nix Professional Bldg., San Antonio, Secy.

Texas Society of Pathologists, Galveston, Jan. 28, 1951. Dr. Charles Phillips, Temple, Pres.; Dr. A. O. Severance, 205 Camden, San Antonio, Secy.

Texas Surgical Society, Waco, Oct. 2-3, 1950. Dr. R. J. White, Fort Worth, Pres.; Dr. Truman G. Blocker, 927 Strand, Galveston, Secy.

Texas Tuberculosis Association, Dallas, April 13-14, 1951. Dr. Elliott Mendenhall, Dallas, Pres.; Miss Pansy Nichols, 208 E. Ninth, Austin, Executive Secy.

Texas Urological Society, San Antonio, Jan. 22, 1951. Dr. Hub E. Isaacks, Fort Worth, Pres.; Dr. John M. Pace, 428 Medical Arts Bldg., Dallas, Secy.

DISTRICT

Second District Society. Dr. James W. Rainer, Odessa, Pres.; Dr. Frank M. James, 1021 N. Whitaker Ave., Odessa, Secy.

Third District Society, Lubbock, Oct. 3-4, 1950. Dr. Allen T. Stewart, Lubbock, Pres.; Dr. James T. Hall, 1302 Avenue Q, Lubbock, Secy.

Fourth District Society, Brownwood, Nov. 1, 1950. Dr. Gordon F. Madding, San Angelo, Pres.; Dr. S. B. Locker, First National Bank Bldg., Brownwood, Secy.

Fifth and Sixth Districts Society, Corpus Christi, 1951. Dr. E. King Gill, Corpus Christi, Pres.; Dr. Foy Moody, 1611 Fifth St., Corpus Christi, Secy.

Seventh District Society. Dr. John F. Thomas, Austin, Pres.; Dr. George W. Tipton, 502 W. 15, Austin, Secy.

Eighth District Medical Society, Spring, 1951. Dr. Leonard Johnson, El Campo, Pres.; Dr. Robert Casey, Texas City, Secy.

Tenth District Medical Society, Port Arthur. Dr. J. A. Richardson, Sr., Jasper, Pres.; Dr. Dale H. Davies, Liberty, Secy.

Eleventh District Society, Tyler, Fall, 1950. Dr. E. G. Faber, Tyler, Pres.; Dr. John M. Travis, Jr., Jacksonville, Secy.

Twelfth District Society. Dr. W. K. Logsdon, Corsicana, Pres.; Dr. N. C. Smith, Hillsboro, Secy.

Thirteenth District Society, Mineral Wells, Oct. 10, 1950. Dr. R. L. Daily, Wichita Falls, Pres.; Dr. S. W. Wilson, Medical Arts Bldg., Fort Worth, Secy.

Fourteenth District Society, Bonham, June, 1951. Dr. Mayo Tenery, Waxahachie, Pres.; Dr. L. W. Johnston, 502 W. College St., Terrell, Secy.

Fifteenth District Society, Texarkana, Oct. 26, 1950. Dr. F. V. Mondrik, Longview, Pres.; Dr. Hardy Cook, Longview, Secy.

CLINICS

Dallas Southern Clinical Society, Dallas, March 26-29, 1951. Miss Betty Elmer, Medical Arts Bldg., Dallas 1, Executive Secy.

International Post-Graduate Medical Assembly of Southwest Texas, San Antonio, Jan. 23-25, 1951. Dr. John J. Hinchey, P. O. Box 2445, San Antonio, Secy.

New Orleans Graduate Medical Assembly, New Orleans, March 5-8, 1951. Dr. Woodard D. Beacham, Room 105, 1430 Tulane Ave., New Orleans 12, Secy.

North Texas-Southern Oklahoma Fall Clinical Conference, Wichita Falls, Sept. 20, 1950. Dr. Robert L. Daily, 214 Hamilton Bldg., Wichita Falls, Program Chairman.

Oklahoma City Clinical Society Conference, Oklahoma City, Oct. 30-Nov. 2, 1950. Mrs. Muriel R. Waller, 512 Medical Arts Bldg., Oklahoma City 2, Executive Secy.

Post Graduate Medical Assembly of South Texas, Houston, Nov. 20-22, 1950. Dr. Donald M. Paton, Secy., 229 Medical Arts Bldg., Houston.

NORTH TEXAS-SOUTHERN OKLAHOMA CONFERENCE

The North Texas-Southern Oklahoma Fall Clinical Conference, which will be held September 20 in Wichita Falls, will consist of the following program:

MORNING

Dr. J. R. Reagan, Wichita Falls, presiding.

Intrathoracic Tumors—Dr. M. E. DeBakey, Houston.
Antibiotics in Common Use Today—Dr. C. S. Keefer, Boston.
Leaves from an Obstetrician's Notebook—Dr. Edward A. Schumann, Philadelphia.

AFTERNOON

Dr. J. A. Little, Wichita Falls, presiding

ACTH and Cortisone in Medical Practice—Dr. C. S. Keefer, Boston.
Peripheral Vascular Diseases—Dr. M. E. DeBakey, Houston.
Leaves from a Gynecologist's Notebook—Dr. Edward A. Schumann, Philadelphia.

EVENING

Cocktail hour.
Dinner.
Opening remarks by program chairman, Dr. Robert L. Daily, Wichita Falls.
Special awards.
Newer Aspects of Problems Involved in Breast Diseases—Dr. Frank E. Adair, New York.

Round-table question and answer periods will be held at the conclusion of morning and afternoon sessions. Commercial exhibits will be a part of the meeting.

The Woman's Auxiliary will have a "coke" party at the home of Dr. and Mrs. Harry Ledbetter in the morning and will hear Dr. Adair speak on "What Every Woman Should Know about Cancer of the Breast" in the afternoon. In the evening they will be guests at the cocktail hour and dinner.

Registration will be centered at the Wichita Falls Country Club. Physicians will pay $7 for the entire program, including meals; women visitors will be charged a fee of $4 for the dinner and evening program.

WORLD HEALTH ASSEMBLY HELD

The third World Health Assembly was held in Geneva, Switzerland, from May 8 to 27, with delegates and observers from sixty-three countries and territories and observers from other specialized agencies of the United Nations and interested nongovernmental organizations attending.

Among the programs adopted for 1951 were continuation of the campaigns against malaria, tuberculosis, and venereal disease; expansion of activities in the field of communicable diseases, particularly cholera, plague, cholera, and trachoma; and research programs for rabies, influenza, poliomyelitis, rheumatism, hepatitis, and dental hygiene.

The budget for 1951 was fixed at the same level as 1950; $7,300,000, exclusive of a supplementary budget for technical assistance to underdeveloped areas. The budget quota for the United States was reduced from 36 to 35 per cent. A building fund of $233,645 was set up for construction of a new wing to the Palais des Nations in Geneva to accommodate the permanent headquarters of the organization.

The withdrawal of Russia and Russian satellite nations evoked a resolution reiterating that the World Health Organization would welcome their renewed participation.

The secretary general of the United Nations, Trygve Lie, spoke at the opening session, appealing to governments to put an end to the cold war and to help the United Nations and its specialized agencies to create conditions of economic and social security which could serve as a basis for durable peace.

The 1951 assembly will be held at the Geneva headquarters.

PERSONALS

Dr. A. R. Kirkley, Belton, was appointed city commissioner May 25 to fill the unexpired term of a member who had resigned, according to the Temple *Telegram.*

Dr. I. D. Ellis, Troy, on May 23 celebrated his fiftieth year as a practicing physician of that town, states the Moody *Courier.*

Dr. Marjorie Williams, Temple, was installed as president of the Temple chapter of the American Association of University Women at a dinner May 9, reports the Temple *Telegram.*

Dr. Felix N. Rutledge, Houston, married Miss Lucile Meachum of Houston in Christ Church Cathedral, Houston, on April 12, states *Medical Records and Annals.*

Dr. D. J. Sibley, Fort Stockton, married Miss Jane Horton Dunn recently, reports the *Bulletin* of the University of Texas Medical Branch Alumni.

A daughter was born recently to *Dr. and Mrs. J. S. Caldwell,* West Columbia.

Dr. and Mrs. J. M. Harland, Houston, are the recent parents of a girl.

Dr. and Mrs. J. B. Johnson, Jr., Galveston, recently became the parents of a boy.

Dr. and Mrs. G. D. Ford, Galveston, have a new son.

Dr. and Mrs. C. T. Stone, Jr., Galveston, are the parents of a boy, C. T. Stone, III.

BASIC SCIENCE EXAMINATIONS IN OCTOBER

The next general examination to be given by the Texas State Board of Examiners in the Basic Sciences will be held October 13-14 in Austin. There is a possibility that the same examination will be given on the same dates in Dallas. Processing of applications should be completed ten days prior to examination time.

The next examinations are scheduled for April, 1951.

Application blanks and additional information may be obtained from the Basic Science Board, 306 Nalle Building, Austin.

Two Antihistaminics Fail in Colds

In a controlled study conducted at West Point, a group of Army Medical Corps officers concluded that two antihistaminic drugs, tripelennamine hydrochloride and chlorothen citrate, taken within twenty-four hours after the onset of symptoms for the common cold were no more effective than placebos.

Reporting in the May 13 *Journal of the American Medical Association,* Lt. Col. R. J. Hoagland, Capt. E. N. Deitz, Lt. P. W. Myers, and Lt. H. C. Cosand, wrote: "Patients who began treatment within 24 hours after the onset of a head cold were about as likely to be among those reporting no help as among the group reporting cures. This was approximately equally true of patients receiving all forms of treatment [including placebos]."

However, the antihistaminic drugs appear to lessen nasal discharge, the article indicates. The survey was conducted on 190 patients, all healthy young men in military service.

Exposure to fumes and gases could not be proved to favor the onset of tuberculosis; neither lead absorption and intoxication, nor mill dust and foundry employment are associated with the development of tuberculosis. High temperatures and humidity are without significant influence upon tuberculosis, nor are any theoretical reasons advanced to the effect that they should be. Radiant heat in the steel industry causes no tuberculosis in those exposed.—Rutherford T. Johnstone, Am. Rev. Tuberc., Oct., 1948.

LIBRARY SECTION

PACKAGE SERVICE

The package library consists of collections of reprints and other periodical material on various subjects, prepared for lending to members of the Association. Request for packages should be addressed "Library, State Medical Association of Texas, 700 Guadalupe Street, Austin, Texas." Twenty-five cents in stamps should be enclosed with the request to cover postage and part of the expense of collecting the material. Packages are allowed to remain in the hands of the borrower for 14 days.

ACCESSIONS

The following additions were made to the Library during July:

Reprints received, 3,471.

Journals received, 326.

Books received, 13.

Medical Parasitology, Sewitz, Blakiston Company, Philadelphia.

It's Up To You, Ross, Constitution and Free Enterprise Foundation, New York.

Merck Manual, Merck and Company, 8th edition, Merck and Company, Rahway, N. J.

The Mask of Sanity, Cleckley; *The Text Book of Anatomy and Physiology,* Anthony; *Varicose Veins,* Horder; *Delayed Union in Fracture of the Long Bone,* Starr; and *Penicillin, Its Practical Application,* Fleming, C. V. Mosby Company, St. Louis.

Medical Diagnosis, Applied Physical Diagnosis, Pullen; *Textbook of Gynecology,* Curtis and Huffman, W. B. Saunders Company, Philadelphia.

Asphyxia Neonatorum, Windle; *Diagnosis of Salmonella Types,* Kaufman; *Light Therapy,* Kovacs, Charles C. Thomas, Springfield, Ill.

SUMMARY OF SERVICE

Local users, 34.	Borrowers by mail, 77.
Items consulted, 1,023.	Packages mailed, 83.
Items borrowed, 135.	Items mailed, 324.
Films loaned, 41.	

MOTION PICTURE FILM LIBRARY

Motion picture films on medical subjects, 16 mm., both silent and sound, some in color, and suitable for either medical or lay audiences, are available for loan to county medical societies, hospital staffs, or individual physicians, on request. Borrowers will be required to pay only the cost of shipment of the films, by express, with insurance, and for any damage to films in the hands of the borrower.

Request for films should be addressed to "Motion Picture Film Library, State Medical Association of Texas, 700 Guadalupe Street, Austin, Texas." A list of available films, with descriptions, will be furnished on request.

The following motion picture films were loaned by the Film Library during July:

Appendicitis in Childhood (Mead Johnson)—Jefferson County Academy of General Practice, Beaumont.

Appraisal of the Newborn (Mead Johnson)—Vernon Hospital and Clinic, Vernon.

As Others See Us (American Hospital Association)—Vernon Hospital and Clinic, Vernon.

Breast Cancer: Problem of Early Diagnosis (American Cancer Society)—Dr. R. W. Loveless, Bastrop.

Breech Extraction with Forceps (Mead Johnson)—The Johns Clinic and Hospital, Taylor.

Cardio-Vascular Anomalies, Congenital, Amenable to Surgery (Mead Johnson)—Drs. Hyslop and Hyslop, Del Rio.

Cataract Surgery (Dr. R. K. Daily)—University of Texas, Austin.

Cervical Smear (Dr. Karl J. Karnaky)—Mitchell Clinic, McKinney.

Cholecystectomy (Mead Johnson)—Mitchell Clinic, McKinney.

Doctor Speaks His Mind, The (American Cancer Society)—Drs. Hyslop and Hyslop, Del Rio.

Dysmenorrhea, Primary (G. D. Searle and Co.)—Scott and White Hospital School of Nursing, Temple.

Forty Billion Enemies (Westinghouse Electric and Manufacturing Company)—Scott and White Hospital School of Nursing, Temple.

From Moo to You (Borden Company)—Scott and White Hospital School of Nursing, Temple.

Golden Glory (Standard Brands)—Dr. R. W. Loveless, Orgain Hospital, Bastrop.

Hepatitis, Observation on (Mead Johnson)—Veterans Administration Hospital, Legion.

Hypodermic Syringes and Needles: Their Care and Function (Becton, Dickinson and Co.)—Cuero Hospital and Clinic, Cuero, and Scott and White Hospital School of Nursing, Temple.

Intracranial Injuries of the Newborn (Mead Johnson)—Dr. R. W. Loveless, Orgain Hospital, Bastrop.

Malaria (British Information Services)—Scott and White Hospital School of Nursing, Temple.

Nasal Sinusitis (E. Fougera and Co.)—Rio Grande Valley Eye, Ear, Nose, and Throat Society, Harlingen.

Normal Delivery (Mead Johnson)—Bohman Clinic, Cuero, and Scott and White Hospital School of Nursing, Temple.

Nutrition in Wound Healing (California Fruit Growers)—Johnson County Hospital Nurses Training School, Cleburne.

Premature Infant, Care of (Mead Johnson)—Scott and White Hospital School of Nursing, Temple, and Bohman Clinic, Cuero.

Resuscitation of the Newborn (Mead Johnson)—Scott and White Hospital School of Nursing, Temple.

Rickets and Scurvy, Incidence of (Mead Johnson)—Drs. Hyslop and Hyslop, Del Rio.

Roentgen Pelvimetry (Mead Johnson)—Jefferson County Academy of General Practice, Beaumont.

Splenic Flexure Carcinoma, Surgical Treatment for, with Solitary Liver Metastasis (Dr. Philip Thorek)—Drs. Hyslop and Hyslop, Del Rio.

Strabismus Surgery (Drs. Ray K. and Louis Daily)—University of Texas, Austin.

TB, This Is (Texas Tuberculosis Association)—P.T.A. Members and Guests, Alexander and School Hill.

Techniques of Injection (Becton, Dickinson and Co.)—Veterans Administration Hospital, Legion.

They Also Serve (American Medical Association)—The Johns Clinic and Hospital, Taylor, and Mitchell Clinic, McKinney.

Traitor Within, The (American Cancer Society)—Lions Club, Lockney.

Trichomonal and Monilial Vaginitis (G. D. Searle and Co.)—Scott and White Hospital School of Nursing, Temple.

Uterosalpingography (E. Fougera and Co.)—Mitchell Clinic, McKinney.

Varicose Veins and Their Complications (Becton, Dickinson and Co.)—Mitchell Clinic, McKinney.

Varicose Veins, Treatment of (G. D. Searle and Co.)—Johnson County Hospital Nurses Training School, Cleburne.

What Is Cancer? (American Cancer Society)—Vernon Clinic-Hospital, Vernon.

You Can Help (Texas Tuberculosis Association)—P.T.A. Members and Guests, Alexander and School Hill.

GIFTS FOR THE LIBRARY

The Library of the State Medical Association has recently obtained almost the entire medical library of Dr. S. A. Woolsey, Austin, who is retiring from active practice. Dr. Woolsey donated more than 150 journals and an equal number of books, most of them in the fields of general medicine, surgery, and obstetrics, to the Library.

Dr. R. H. Bell, Palestine, has presented two rare books to the Library, one an 1853 publication on dental surgery and the other an 1891 edition of "Dr. Chase's Receipt Book," copyrighted in 1884.

BOOK NOTICES

[1]Progress in Biochemistry Since 1939

Felix Haurowitz, M. D. (Prague), D. Sc. (Prague), Professor of Chemistry, Indiana University, Bloomington, Ind. Cloth, 389 pages. $7.50. New York, Interscience Publishers, Inc., 1950.

In 389 pages the author gives concise digests of biochemistry since 1939. Carbohydrates, proteins, fats, vitamins, hormones, enzymes, the use of isotopes in biochemistry, the intermolecular forces in living matter, and the thermodynamics and kinetics in biochemical reactions are discussed.

The presentation is brief but clear, concise, and understandable. This book is of particular interest to persons in medical research as a summary of recent work and particularly because of the 2,291 references to recent literature.

[2]Thrombosis in Arteriosclerosis of the Lower Extremities

Edward A. Edwards, M. D., F.A.C.S., Diplomate of American Board of Surgery, Clinical Associate in Anatomy, Harvard Medical School; Instructor in Surgery, Tufts College Medical School; Consultant in Peripheral Vascular Disease, Joseph H. Pratt Diagnostic Hospital and Hospital of the Massachusetts Soldiers' Home. Fabrikoid, 74 pages. $2. Springfield, Ill., Charles C. Thomas, 1950.

This monograph is a concise review of thrombosis in arteriosclerosis.

Causative factors including injury and the various pathologic processes underlying thrombosis are discussed. The clinical manifestations following the ischemia produced by partial and complete arterial occlusion are presented. The course of disease is outlined and the prognosis is discussed.

Treatment is presented in detail. The importance of sympathectomy is emphasized in treatment of established thrombosis. Attention is likewise given to nonoperative methods including use of anticoagulants, suction-pressure maneuvers, Buerger's exercise, and drugs. The author's failure to achieve consistent benefit from intravenous ether and from ascorbic acid combined with histidine is noted.

Brief consideration is given to the management of venous thrombosis. The management of established necrosis is likewise considered. Herein are mentioned the appropriate time for amputation; the use of refrigeration for the control of infection and pain (in the author's opinion to be used only if the limb is adjudged lost); and the use of antibiotics.

Several cases illustrating the clinical manifestations and treatment in both spontaneous thrombosis and that brought on by injury are presented.

[3]Vitaminology

Walter H. Eddy, Ph.D., Cloth, 365 pages. $6. Baltimore, Williams and Wilkins Company, 1949.

This book is an effort to place before students of the nutritional problem firsthand scientific information from the biochemist's viewpoint. Dr. Eddy, a biochemist, does not make excessive claims for vitamin therapy

In spite of a great deal of tedious research which has been done by the biochemists, there is still more to be done. This volume is intended to bring the reader up to date insofar as the present knowledge of vitamins is concerned.

[4]1949 Year Book of Drug Therapy

Harry Beckman, M. D., Director, Department of Pharmacology, Marquette University School of Medicine, Editor. Cloth, 718 pages. $5. Chicago, Year Book Publishers, 1949.

It is particularly fortunate at this time, when drug therapy in all branches of medicine has taken a prominent position never equaled in previous decades, that Dr. Beckman should have introduced this book. The articles have been wisely selected and magnificently abstracted.

The book should prove of great aid to all branches of medicine. It is effectively arranged in its several categories, and the editorial comments add to the value of the abstracts wherever used.

[5]Essentials of Orthopaedics

Philip Wiles, M. S. (Lond.), F.R.C.S. (Eng.), F.A.C.S. Cloth, 486 pages. $10. Philadelphia, Blakiston Company, 1949.

As Mr. Wiles states in the preface, this book was prepared for the undergraduate and postgraduate student and the general practitioner.

Conservative treatment is described in detail in most instances whereas operative procedures are mentioned only in general terms. This is as it should be for a book of this type.

The first chapter is an excellent treatise on postural defects. Then follows a chapter on back pain and seven chapters devoted to disorders by anatomic location. The last portion is composed of six chapters on pyogenic infection, tuberculosis, chronic arthritis, tumors of bone, diseases and congenital defects of bone, and diseases of the nervous system. The book is nicely illustrated with good reproductions. The "essentials" are amply covered except for any material on the general treatment of fractures and late fracture deformities. The principal criticism is the absence of a bibliography.

Practicing orthopedic surgeons will find little use for the textbook. However, as a student text it should prove extremely useful and popular.

[1]*Elwood H. LaBrosse, M. D., Austin.*
[2]*Joe T. Gilbert, M. D., F.A.C.S., Austin.*
[3]*Lester C. Feener, M. D., El Paso.*
[4]*David R. Sacks, M. D., San Antonio*
[5]*M. H. Morris, M. D., San Antonio.*

[6]**Medical Management of Gastrointestinal Disorders**

Garnett Cheney, M. D., Clinical Professor of Medicine, Stanford University Medical School. Cloth, 478 pages. $6.75. Chicago, The Year Book Publishers, Inc., 1950.

This relatively small, easily-read book, which is one of "The General Practice Manuals," is the personal expression of the author. In a gratifying manner he omits obsolete material, too frequently carried over from text to text. Throughout the book the author outlines his approach in diagnosis and his specific treatment of digestive diseases. Considerable confusion could be eliminated among patients referred for laboratory and x-ray examinations if the concise and detailed instructions outlined by the author were followed as routine.

In emphasizing "the need for a harmonious liaison between the referring physician and the roentgenologist," the author aptly states that "the physician needs to know the roentgenologist's interpretation of the x-ray film, but does not need a long report of the differentiation of doubtful findings." He further emphasizes the necessity for correlating a carefully taken history and complete physical examination with the laboratory and roentgen-ray examination.

The book is divided into two parts. Part I is devoted to "The Patient Approach," which includes pertinent facts in history taking and a brief review of essential laboratory examinations.

Part II, "Symptom Diagnosis and Treatment," includes a discussion of the symptom complex in gastroenterology with recommendations as to treatment and a discussion of the treatment of specific entities including gallbladder disease, the ulcer problem, allergy, and the differential diagnosis of jaundice. In advising the use of drugs the author recommends the drugs of his personal choice with the dosage he employs, thus eliminating a discussion of other drugs having the same action.

This book is recommended to that large group of physicians who, though they are not gastroenterologists, nevertheless number among their patients many who present themselves for the treatment of digestive complaints.

[7]**Hemorrhagic Disorders, A Guide to Diagnosis and Treatment**

Paul M. Aggeler, M. D., Assistant Clinical Professor of Medicine; and S. P. Lucia, M. D., Professor of Medicine, University of California Medical School. Cloth, 111 pages. $10. Chicago, The University of Chicago Press, 1949.

This monograph, based in large on tables, diagrams, and posters used in teaching hematology at the University of California Medical School, covers the subject succinctly and well. It is not intended primarily for the hematologist and makes no pretense to be what it is not. There is little space wasted over the pros and cons of debatable questions. The purely theoretic or unknown is frankly described as such.

The authors are to be congratulated upon compressing so much information, so clearly and explicitly presented, into a volume this size. Its methods and format make it of interest not only to technicians, students, and most physicians, but also to others especially interested in this field.

[8]**La Vectocardiographie**

Pierre-W. Duchosal, University of Geneva, and Robert Sulzer, University of Geneva. Paper, 172 pages. Switzerland, S. Karger, 1949.

This publication describes the results of several years' work by the authors in arriving at a method for recording the electrical potentials of the heart in three dimensions. By means of special equipment, they have been able to record the electrical potential changes in the frontal and sagittal planes, simultaneously. From this data they have constructed wire models which effectively demonstrate the spatial loupes of the P, QRS, and T waves. Such work is also being done in this country, but these authors are among the pioneers in pointing out that measurement of the heart's electrical activity by simple frontal plane recording, as most physicians are doing at present, is likely to be obsolete in a few years.

The book may not interest many as it concerns a narrow field. For those interested in advanced electrocardiography, it is an important book.

[9]**Your Nasal Sinuses and Their Disorders**

Albert P. Seltzer, M. D., M. Sc., Sc. D. (Med.), F.A.C.S., F.I.C.S. Cloth, 155 pages. $2.50. New York, Froben Press, Inc., 1949.

This book appears to place in a layman's hands information which is more readily pertinent to a public health nurse or a pharmaceutical detail man. It may readily perpetuate or suggest new modes of bizarre torture in a psychoneurotic person. It is predicted that the latter type person will be the most frequent reader of the treatise, and he might have nocturnal visions of peanut-shaped germs on ladders invading through the nostrils or abrasions of the skin. It is difficult to categorize a book with a bit of fact, statistics, etymology, caricatures, and an admonition to see one's otolaryngologist. Notwithstanding the amount of inspiration and painstaking labor that went into this book, its utility is doubtful.

[10]**Diseases of the Foot**

Emil D. W. Hauser, M. S., M. D. Second edition. Cloth, 415 pages. $7. Philadelphia and London, W. B. Saunders Company, 1950.

This second edition of Dr. Hauser's book should be a welcome volume for the doctor who specializes or for one who treats occasional foot problems in either adults or children. It is remarkable how completely the author has covered the field in only one volume. Besides anatomy, physiology, and general consideration, the book includes articles on flat-foot, orthopedic conditions, including talipes, postural disturbances, arthrosis, circulatory disturbances, fractures, infections, and tumors. The author has achieved brevity in dealing with this great variety of subjects by being concise and sacrificing extensive discussion of different theories and methods of treatment. In spite of this brevity, however, every subject is adequately covered.

Dr. Hauser stresses especially the use of various types of shoe corrections that he has devised for foot posture and gait disturbances. The trend in this book, as it should be, is definitely toward conservative treatment. Such procedures as strapping feet with adhesive and applying unna boots are well described in a special chapter near the end of the volume. There is a complete index that makes this book especially helpful as a reference.

[11]**A Textbook of Neuropathology**

Ben W. Lichtenstein, B. S., M. S., M. D. Cloth, 474 pages. Philadelphia and London, W. B. Saunders Company, 1949.

A systematic presentation of the disorders of the nervous system as well as allied diseases, with a concise pathologic description of each disease entity, is attained in this book.

[6]*James G. Gorman, M. D., El Paso.*
[7]*Wylie F. Cresl, M. D., Austin.*
[8]*E. Grey Dimond, M. D., Austin.*
[9]*J. Oliver Gooch, M. D., Houston.*
[10]*Louis J. Levy, M. D., Fort Worth.*
[11]*Albert A. LaLonde, M. D., Austin.*

The omission of minor details and controversial points makes this an excellent reference book for quick review of the major findings for any particular nervous disorder. There is an abundance of excellent photographs and microphotographs.

The value of the book is enhanced by a clinical supplement devoted to brief descriptions of common and uncommon neurologic syndromes and diseases, and by another supplement devoted to neuropathologic technique.

[12]Bedside Diagnosis

Charles Mackay Seward, M. D., F.R.C.P. Cloth, 372 pages. $3.50. Baltimore. Williams and Wilkins Company, 1949.

The author of this book on bedside diagnosis has given considerable thought to the fundamentals of physical examination and the almost forgotten art of taking a history. It is certainly a welcome treatise on this subject.

Since the advent of the antibiotics, it is the tendency of the physician to administer antibiotics and then to take histories and give physical examinations later. I was particularly impressed by the chapter on pain as a symptom and its significance; also, the manner in which the author connected diagnosis and psychosomatic medicine.

This book has a place in every medical library and should be required reading for second and third year medical students.

[13]The Cytologic Diagnosis of Cancer

Staff of the Laboratory of the Vincent Memorial Hospital, a Gynecologic Service affiliated with the Massachusetts General Hospital, Boston, Massachusetts; and the Department of Gynecology, Harvard Medical School. Published under the sponsorship of the American Cancer Society. Cloth, 229 pages. $6.50. Philadelphia and London, W. B. Saunders Company, 1950.

The staff which wrote this unusual work consists of eight women technicians led by Mrs. Ruth M. Graham. Working at Vincent Memorial Laboratory of Massachusetts General Hospital, they have studied exfoliated material from 10,000 patients in eight years. More than three-fourths were vaginal studies, but urine, sputum, gastric juice, bronchial secretions, and other fluids also were investigated. Presumably, physicians would be superfluous in the group; these technicians collected most of the material, stained the slides, and made the diagnoses. Rather curious is the total absence of experience with Ayre cervical spatulas. No material on pregnancy smears is included.

The illustrations are amazing, both in quantity and quality. Only because of the book's sponsorship by the American Cancer Society is its low price possible. The text is scanty in words but generous in pictures. Occasional bursts of inept English, such as "The cytoplasm is a basophilia," mar even the brief paragraphs. Obviously the methodical organoid presentation, superb color and line drawings, outstanding technical section, and timeliness of presentation make this required reading for all interested in cytology. Just as obviously, the text cannot be used as a substitute for careful preparation and training, either in cytology or pathology.

[14]Chemotherapy of Leukemia and Leukosarcoma

William Dameshek, M. D.: Marvin L. Bloom, M. D.; Louis Weisfuse, M. D.; Milton H. Freedman, M. D.; and Miguel Layrisse, M. D. Paper, 53 pages. $4.75. New York, Grune and Stratton, 1950.

The authors presented an exhibit on this subject at the American Medical Association convention in Atlantic City, in June, 1949. This monograph is an outgrowth of the exhibit and in the main is composed of the graphs, charts, and photographs presented at Atlantic City.

The use of nitrogen mustard, including pharmacology, technique of administration, and results in 50 consecutive severe cases of Hodgkin's disease, is described. The authors state that in Hodgkin's disease nitrogen mustard is indispensable for generalized roentgen-ray refractory cases and for the relief of pain and constitutional symptoms, and that many "terminal" cases can be salvaged for from six to thirty-six months.

Folic acid antagonists are presented in the same manner, with the authors' statement that these are the first agents which consistently would produce remissions in acute leukemia.

The third and final section is devoted to urethane, describing the results in chronic myelocytic leukemia and in multiple myeloma.

The technique of presentation is excellent. The monograph can be quickly perused and gives important data in a clear, understandable manner.

[15]Medicine of the Year—1950

John B. Youmans, M. D., Dean, School of Medicine, Vanderbilt University, Editorial Director. Cloth, 204 pages. $5. Philadelphia, London, and Montreal, J. B. Lippincott Company, 1950.

This book, to the reviewer's mind, is the best of the numerous review books published each year. Excellent summaries of significant advances are submitted by outstanding authorities in the various medical and surgical specialties. The book is recommended without reservation to all physicians.

[16]Practical Neurological Diagnosis

R. Glen Spurling, M. D., Clinical Professor of Surgery (Neurosurgery), University of Louisville School of Medicine, Louisville, Ky. Fourth edition. Cloth, 268 pages. $5. Springfield, Ill., Charles C. Thomas, 1950.

In this fourth edition of "Practical Neurological Diagnosis" the author has succeeded admirably in presenting "a simple account of the principles of neurological diagnosis ... for students and practitioners who desire to become more proficient in the recognition of neurological disorders." Elimination of unessential detail has kept this book within 237 pages of text. As such it lends itself to quick reference.

Beginning with a glossary of terms commonly used in neurology, the text proceeds with a chapter on essentials of a neurologic history and chapters describing the examination of the nervous system with the interpretation and significance of the findings. The plan of the examination proceeds from the cranial nerves, cerebrum, cerebellum, and spinal cord.

In following chapters are discussions of cerebrospinal fluid and roentgenologic diagnosis, including such special tests as pneumoencephalography, ventriculography, and myelography. The discussion of roentgenograms is well illustrated with numerous plates. An appendix presents the author's outline of the neurologic examination.

Perhaps a brief discussion of the major peripheral nerves could have been included with profit. Nevertheless, such a book presenting so clearly and concisely principles of practical neurologic diagnosis should be found on most physicians' bookshelves.

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[12]*C. E. Payne, M. D., Littlefield.*
[13]*John J. Andujar, M. D., Fort Worth*
[14]*E. Grey Dimond, M. D., Austin.*
[15]*Clifford Thorne, M. D., Austin.*
[16]*Ralph A. Munslow, M. D., San Antonio.*

ORGANIZATION SECTION

AMERICAN MEDICAL ASSOCIATION

MEDICAL OFFICER PROCUREMENT

The entire emergency medical situation was reviewed by the Council on National Emergency Medical Service of the American Medical Association in conference with top military and civil defense medical officials in Washington, July 29 and 30. The Council took the following specific steps:

"1. Declared that more doctors are needed in the armed services, and that the initial needs must be supplied by 'men who were permitted to pursue their medical education and otherwise deferred during World War II,' principally former members of the Army's A.S.T.P. and Navy's V-12.

"2. Discussed the possibility of legislation making it legally possible to call up this group of men without their consent.

"3. Agreed to publicize further the bonus pay provision for medical volunteers. Under this law, medical officers who volunteer receive an additional $100 per month; this is not allowed if the men are called up on mandatory orders. Volunteers also retain their 'separation rank'."

At least two bills pertinent to the problem were introduced in Congress on August 1, the American Medical Association reports. Each would amend the Selective Service Act to authorize the President to require special registration and make draft calls on persons in needed professional, technical, and specialist categories who have not reached the age of 45. Such inductions would not exceed twenty-one months in the armed forces and would be made according to a priority list headed by former A.S.T.P. and V-12 students who saw no active service.

COUNTY SOCIETIES

Austin-Waller Counties Society

June 13, 1950

Salvation from Bondage—Denton Kerr, Houston.
Internal Medicine in Relation to Patient—A. M. Dasheill, Houston.

The program outlined above was given when twenty members of the Austin-Waller Counties Medical Society and Auxiliary held a dinner meeting in Bellville on June 13. Dr. and Mrs. V. Gordon, Sealy, were hosts.

Brazos-Robertson Counties Society

May 16, 1950

Mediastinal Tumors—G. V. Brindley, Jr., Temple.

At the May 16 meeting of the Brazos-Robertson Counties Medical Society the above subject was the topic of Dr. Brindley's speech.

Eastland-Callahan-Stephens-Shackelford-Throckmorton Counties Society

June 20, 1950

(Reported by H. H. Cartwright, Secretary)

At the consolidation meeting of Eastland-Callahan and Stephens-Shackelford-Throckmorton Counties Medical Societies held June 20 in Ranger a resolution was passed expressing thanks to D. J. R. Youngblood, Breckenridge, for his twenty-five years of service as secretary-treasurer of Stephens County and of Stephens-Shackelford-Throckmorton Counties Medical Society. Dr. Youngblood was elected president of the new organization.

Ector-Midland-Martin-Howard-Andrews-Glasscock Counties Society

May 18, 1950

Surgery of Stomach—Charles Bussey, Dallas.

About forty physicians attended the May 18 meeting in Big Spring of Ector-Midland-Martin-Howard-Andrews-Glasscock Counties Medical Society. The program above was presented and the auxiliary held a meeting conjointly.

Kerr-Kendall-Gillespie-Bandera Counties Society

May 8, 1950

Anesthesia—J. W. Winter, San Antonio.

The Kerr-Kendall-Gillespie-Bandera Counties Medical Society met May 8 in Kerrville with the program outlined above being presented. D. R. Knapp, Kerrville, reported on the annual session held in Fort Worth recently.

Medina-Uvalde-Maverick-Val Verde-Edwards-Real-Kinney-Terrell-Zavala Counties Society

June 9, 1950

Causes of Rectal Bleeding—John C. Glenn, Jr., Durham, N. C.
Fundamentals of Atomic Medicine—Harvey Renger, Hallettsville.
Carcinoma of Colon—Phillip S. Kline, Temple.
Management of Tuberculosis—L. M. Shefts, San Antonio.

The program outlined above was given at the regular meeting on June 9 in Del Rio of Medina-Uvalde-Maverick-Val Verde-Edwards-Real-Kinney-Terrell-Zavala Counties Medical Society.

Pecos-Jeff Davis-Presidio-Brewster Counties Society

June 6, 1950

(Reported by W. E. Lockhart, Secretary)

Five members of Pecos-Jeff Davis-Presidio-Brewster Counties Medical Society met June 6 in Alpine, with Joel Wright, Alpine, president, presiding. One guest attended the meeting. The motion made by Dr. Wright and seconded by F. M. Logsdon, Marfa, that the by-laws be amended to read "annual dues shall be $40 per year, $35 of which shall be State dues" carried unanimously. Another motion by Dr. Logsdon, seconded by C. E. Oswalt, Jr., Fort Stockton, that the name of the society be the "Big Bend Counties Medical Society" also passed unanimously.

Victoria-Calhoun-Goliad Counties Society

May 24, 1950

In Victoria on May 24 the Victoria-Calhoun Counties Medical Society sponsored demonstrations on the operation of respirators for six doctors and thirty nurses as one way of preparing for a possible epidemic of poliomyelitis. The respirators used included a new type of portable machine recently purchased through a public subscription sponsored by the Kiwanis Club of Victoria.

Webb-Zapata-Jim Hogg Counties Society

May 9, 1950

At the May 9 meeting in Laredo of Webb-Zapata-Jim Hogg Counties Medical Society, E. M. Longoria reported on the annual session of the State Medical Association in Fort Worth.

TEXAS COUNTY MEDICAL SOCIETY CHARTER AND CONSTITUTION DATA

District	Society*	Original Charter Date	New Charter Date and No.	Constitution and By-Laws†	President and Secretary Inscribed on Charter
11	Anderson-Houston-Leon	May 15, 1937		Model requested	
10	Angelina				
3	Armstrong-Donley-Childress-Collingsworth-Hall	Feb. 26, 1945		Pending	
5	Atascosa	Aug. 12, 1913			
9	Austin-Waller	Dec. 19, 1939	‡ (105)	Apprvd. Jan. 21, 1950	Malcolm A. Jones, O. E. Steck
7	Bastrop	Dec. 30, 1903	Apr. 30, 1950 (106)	Apprvd.	Joe V. Fleming, Walter S. Moore
13	Baylor-Knox-Haskell	Feb. 17, 1933	‡ (107)	Model requested	John A. Richardson, Joe Davis
6	Bee-Live Oak-McMullen	Jan. 31, 1934	May 2, 1949 (108)	Apprvd.	Ernest E. Miller, David W. Davis
12	Bell	Nov. 10, 1903		Model requested	
5	Bexar (Aug. 20, 1919)	Sep. 10, 1903		Pending	
12	Bosque	Feb. 22, 1905	May 2, 1949 (111)	Apprvd.	T. A. Koerner, Wiseman T. Holder
15	Bowie	1905		Model requested	
8	Brazoria	Apr. 5, 1904	Sep. 17, 1949 (113)	Apprvd.	A. O. McCary, W. D. Nicholson
12	Brazos-Robertson	1905	May 2, 1949 (114)	Apprvd.	T. A. Searcy, Charles M. Cole
6	Brooks-Duval-Jim Wells	May, 1939	May 2, 1949 (115)	Apprvd.	George A. Farquhar, G. G. Wyche, Jr.
4	Brown-Comanche-Mills-San Saba	Sep. 9, 1939	Sep. 27, 1949 (116)	Apprvd.	S. Braswell Locker, J. B. Stephens
9	Burleson	Oct. 26, 1903		Model requested	
7	Caldwell	Dec. 24, 1903	Apr. 30, 1950 (118)	Apprvd.	Edward P. Waller, P. A. Wales
6	Cameron-Willacy	Jan. 29, 1934	‡ (119)	Pending	John A. Crockett, Glenn Bartlett
15	Camp	Dec. 16, 1903	Apr. 30, 1950 (120)	Apprvd.	Robert Y. Lacy, Joe K. Bates
15	Cass-Marion	Jan. 1, 1934		Pending	H. L. D. Jenkins, T. M. Steed, Jr.
11	Cherokee	Dec. 23, 1903		Model requested	
13	Clay-Montague-Wise	Apr. 23, 1935	‡ (123)	Apprvd. Sep. 17, 1949	John T. Lawson, S. J. Petty
14	Collin	Aug. 1, 1903	Apr. 30, 1950 (124)	Apprvd.	F. A. Duncan Alexander, Charley E. Wysong
4	Coleman	Sep. 22, 1903	Jan. 21, 1950 (125)	Apprvd.	F. M. Burke, J. C. Young
8	Colorado-Fayette	Apr. 30, 1946	Sep. 17, 1949 (126)	Apprvd.	Leslie Boelsche, Jones C. Laughlin
5	Comal	July 18, 1903		Model requested	
14	Cooke	Nov. 28, 1903		Model requested	
12	Coryell	Aug. 10, 1904	Apr. 30, 1950 (129)	Apprvd.	James H. Hamilton, O. W. Lowrey
4	Crane-Upton-Reagan	Jan. 1, 1930	Sep. 17, 1949 (130)	Apprvd.	S. Frank Robinson, Billy Joe Maynard
3	Dallam-Hartley-Sherman-Moore	Apr. 1, 1930	Apr. 30, 1950 (131)	Apprvd.	Norman E. Wright, Duane W. Meredith
14	Dallas	July 11, 1903	Sep. 18, 1949 (132)	Apprvd.	George A. Schenewerk, W. W. Fowler
2	Dawson-Lynn-Terry-Gaines-Yoakum	Jan. 11, 1934	Apr. 30, 1950 (133)	Apprvd.	U. H. Zee, Douglas B. Black
14	Delta	1905		Pending	
14	Denton	1905		Model requested	
8	Dewitt	1905	Apr. 30, 1950 (136)	Apprvd.	L. B. Landry, Frank A. Prather
13	Eastland-Callahan§	Jan. 1, 1934	Jan. 21, 1950 (137)	Apprvd.	Ervin E. Addy, Jr., W. P. Watkins
2	Ector-Midland-Martin-Howard-Andrews-Glasscock	Jan. 12, 1934	Jan. 21, 1950 (138)	Apprvd.	James W. Rainer, David L. Greenlees
1	El Paso (Aug. 5, 1921)	1905	Sep. 17, 1949 (139)	Apprvd.	J. Leighton Green, C. C. Stapp
14	Ellis	1905	Apr. 30, 1950 (140)	Apprvd.	B. C. Wallace, Jr., W. P. Ball
12	Erath-Hood-Somervell	Jan. 1, 1930		Model requested	
12	Falls	1905	Apr. 30, 1950 (142)	Apprvd.	Douglas R. Swetland, Walter S. Smith
14	Fannin	1905			
11	Freestone	1905	Apr. 30, 1950 (144)	Apprvd.	M. A. Gage, L. L. Bonner
8	Galveston	1905	May 4, 1949 (145)	Apprvd.	William T. Anderson, Edward F. Lefeber
5	Gonzales	1905	Apr. 30, 1950 (146)	Apprvd.	D. M. Shelby, James C. Price
14	Grayson	1905	Jan. 21, 1950 (147)	Apprvd.	W. D. Blassingame, George S. Rowlett
3	Gray-Wheeler-Hansford-Hemphill-Lipscomb-Roberts-Ochiltree-Hutchinson-Carson (Jan. 1, 1949)	Jan. 9, 1948		Pending	
15	Gregg	1905		Pending	
9	Grimes	1905	Jan. 21, 1950 (150)	Apprvd.	G. C. Sanders, H. L. Stewart
5	Guadalupe	Dec. 28, 1923	Jan. 21, 1950 (151)	Apprvd.	Joseph T. Goetz, Hugh Davis
3	Hale-Floyd-Briscoe-Swisher	1921	Apr. 30, 1950 (152)	Apprvd.	Carl C. Jackson, Marvin C. Schlecte
12	Hamilton	1905	Jan. 21, 1950 (153)	Apprvd.	R. A. Kooken, H. R. Nassour, Jr.
3	Hardeman-Cottle-Foard-Motley	Apr. 8, 1931	Apr. 30, 1950 (154)	Apprvd.	Hines Clark, J. F. Hughes
10	Hardin-Tyler	Jan. 1, 1934		Pending	
9	Harris (Aug. 3, 1950)	1905	May 2, 1949 (156)	Apprvd.	Denton Kerr, James E. Pittman
15	Harrison	1905		Pending	
7	Hays-Blanco	Feb. 5, 1934		Apprvd. Apr. 30, 1950	
11	Henderson	1905	Sep. 17, 1949 (159)	Apprvd.	Roy E. Henderson, Don Price
6	Hidalgo-Starr	Jan. 30, 1934	‡ (160)	Apprvd. May 2, 1949	M. Smith, Marion R. Lawler

*Societies which have been incorporated under the laws of the State of Texas are designated by the dates of incorporation.

†The date on which the constitution and by-laws was approved is the same as that on which the charter was issued if a new charter was issued.

‡The original charter was retained.

§Eastland-Callahan and Stephens-Shackelford-Throckmorton Counties Societies are being combined.

Acknowledgment is made to Mrs. Modena H. Anderson, Austin, for the preparation of this table. The Board of Councilors also expresses its appreciation to Mrs. Anderson for her cooperation and assistance in the project to bring county medical society charters and constitutions up to date.

TEXAS COUNTY MEDICAL SOCIETY CHARTER AND CONSTITUTION DATA—Continued

District	Society*	Original Charter Date	New Charter Date and No.	Constitution and By-Laws†	President and Secretary Inscribed on Charter
12	Hill	1905	May 2, 1949 (161)	Apprvd.	Silas W. Grant, Charles A. Garrett
14	Hopkins-Franklin	Apr. 21, 1936			
14	Hunt-Rockwall-Rains	Jan. 1, 1934		Pending reorganization	
10	Jasper-Newton	1905		Model requested	
10	Jefferson (Mar. 29, 1921)	1905	Jan. 21, 1950 (165)	Apprvd.	Thomas B. Matlock, John M. White, Jr.
12	Johnson	1905	Jan. 21, 1950 (166)	Apprvd.	O. T. Smythe, Jr., C. D. Hamilton, Jr.
5	Karnes-Wilson	1905	Apr. 30, 1950 (167)	Apprvd.	—, John V. Blake, Jr.
14	Kaufman	1905	Apr. 30, 1950 (168)	Apprvd.	Louis W. Conradt, Albert D. Pattillo
5	Kerr-Kendall-Gillespie-Bandera	Apr. 24, 1904	‡ (169)	Apprvd. Apr. 30, 1950	E. E. Palmer, C. C. Jones
4	Kimble-Mason-Menard McCulloch	Feb. 12, 1934	Jan. 21, 1950 (170)	Apprvd.	B. A. Hallum, H. W. Martin
6	Kleberg-Kenedy	Jan. 31, 1934	May 2, 1949 (171)	Apprvd.	Earl Gaston, H. R. Wilhite
14	Lamar	1905			
3	Lamb-Bailey-Hockley-Cochran	Jan. 1, 1934	Apr. 30, 1950 (173)	Apprvd.	G. V. Edgar, James G. Renegar
7	Lampasas-Burnet-Llano	July 11, 1937	Apr. 30, 1950 (174)	Apprvd.	George S. Allen, W. I. Sheppard
5	LaSalle-Frio-Dimmit	Feb. 2, 1934	Apr. 30, 1950 (175)	Apprvd.	Glenn T. Howard, John M. Crawford
8	Lavaca	1905	Sep. 17, 1949 (176)	Apprvd.	Robert W. Williams, James W. Boyle, Jr.
7	Lee	1905	Apr. 30, 1950 (177)	Apprvd.	S. W. Mantzel, Charles A. Parker
10	Liberty-Chambers	Jan. 1, 1931			
12	Limestone	Jan. 1, 1934			
3	Lubbock-Crosby	Mar. 6, 1934		Pending	
12	McLennan	1905	Apr. 30, 1950 (181)	Apprvd.	Tom M. Oliver, W. M. Avent
5	Medina - Uvalde - Maverick-Val Verde-Edwards-Real-Kinney-Terrell-Zavala	1905	Apr. 30, 1950 (182)	Apprvd.	James D. Williamson, J. D. Stepan
12	Milam	1905	May 2, 1949 (183)	Apprvd.	Clifford G. Swift, David Shapiro
9	Montgomery	1905			
15	Morris	1905		Pending	
10	Nacogdoches	1905	Apr. 30, 1950 (186)	Apprvd.	Henry Tucker, James G. Taylor
12	Navarro	1905	May 2, 1949 (187)	Apprvd.	Paul H. Mitchell, Ivan T. Sanders
2	Nolan-Fisher-Mitchell	Aug. 1, 1938		Pending	
6	Nueces	1905		Pending	
10	Orange	1905	May 2, 1949 (190)	Apprvd.	Oliver C. Seastrunk, Carroll B. Shaddock
13	Palo Pinto-Parker	Dec. 24, 1909	Apr. 30, 1950 (191)	Apprvd.	R. C. Jordan, James D. McCall
11	Panola	Nov. 24, 1939	Jan. 21, 1950 (192)	Apprvd.	Charles D. Baker, H. D. Kuykendall
1	Pecos-Jeff Davis-Presidio-Brewster	Nov. 14, 1939	Apr. 30, 1950 (193)	Apprvd.	Joel E. Wright, W. E. Lockhart
9	Polk-San Jacinto	Mar. 13, 1934	Apr. 30, 1950 (194)	Apprvd.	H. A. Wall, Jr., H. C. Powell, Jr.
3	Potter	1905	Jan. 21, 1950 (195)	Apprvd.	George M. Waddill, Jr., Gaylord R. Chase
3	Randall-Deaf Smith-Parmer-Castro-Oldham	Jan. 1, 1934	Apr. 30, 1950 (196)	Apprvd.	Robert P. Jarrett, R. A. Neblett
15	Red River	Jan. 1, 1934		Model requested	
1	Reeves-Ward-Winkler-Loving-Culberson-Hudspeth	Nov. 13, 1939		Pending	
4	Runnels	1905	Jan. 21, 1950 (199)	Apprvd.	Charles F. Bailey, C. T. Rives
11	Rusk	1905			
6	San Patricio-Aransas-Refugio	Apr. 6, 1917	Jan. 21, 1950 (201)	Apprvd.	John W. Tunnell, Rose Tunnell
2	Scurry-Dickens-Kent-Garza-Borden-King-Stonewall	Jan. 11, 1934		Pending reorganization	
10	Shelby-San Augustine-Sabine	Jan. 1, 1934	‡ (203)	Apprvd. Apr. 30, 1950	J. H. Windham, William H. Warren
11	Smith	Nov. 23, 1903	Jan. 21, 1950 (204)	Apprvd.	J. Weldon Birdwell, Milton Freiberg
13	Stephens-Shackelford-Throckmorton§	Jan. 1, 1934		Pending reorganization	
13	Tarrant (Nov. 9, 1904)		Sep. 17, 1949 (206)	Apprvd.	Bert C. Ball, W. P. Higgins, Jr.
13	Taylor-Jones	Jan. 8, 1935	Jan. 21, 1950 (207)	Apprvd.	L. J. Webster, Travis Smith
15	Titus	1905		Model requested	
4	Tom Green-Coke-Crockett-Concho - Irion - Sterling-Sutton-Schleicher	Jan. 1, 1934	‡ (209)	Apprvd. Jan 21, 1950	W. B. Everitt, W. D. Anderson
7	Travis (Sep. 7, 1921)	1905	Jan. 21, 1950 (210)	Apprvd.	J. Edward Johnson, M. Allen Forbes, Jr.
15	Upshur	1905		Model requested	
14	Van Zandt	1905		Model requested	
8	Victoria-Calhoun-Goliad	Feb. 22, 1934	Jan. 21, 1950 (213)	Apprvd.	Fred B. Shields, Edward A. Ehlert, Jr.
9	Walker-Madison-Trinity	Nov. 26, 1940	Apr. 30, 1950 (214)	Apprvd.	James A. McKay, Eugene M. Addison
9	Washington	1904	Apr. 30, 1950 (215)	Apprvd.	W. F. Hasskarl, Jr., C. E. Southern
6	Webb-Zapata-Jim Hogg	Jan. 19, 1934	May 2, 1949 (216)	Apprvd.	Raul de la Garza, James Reitman
8	Wharton-Jackson-Matagorda-Fort Bend	May 14, 1942	‡ (217)	Apprvd. Jan. 21, 1950	J. W. Simons, R. G. Johnson
13	Wichita	1905	May 4, 1949 (218)	Apprvd.	Keith W. McFatridge, Charles H. Brown
13	Wilbarger	1905		Model requested	
7	Williamson	1905	Apr. 30, 1950 (220)	Apprvd.	W. R. Swanson, H. R. Gaddy, Jr.
14	Wood	1905	May 2, 1949 (221)	Apprvd.	William T. Black, E. P. Tottenham
13	Young-Jack-Archer	May 3, 1938			

AUXILIARY SECTION

ANNUAL REPORTS OF COUNTY AUXILIARIES

(EDITOR'S NOTE: This is a continuation from page 557, July, 1950, issue of the JOURNAL of the annual reports presented by county auxiliaries at the annual session of the Woman's Auxiliary to the State Medical Association of Texas in Fort Worth, May 1-4, 1950.)

Galveston County

The Galveston County Auxiliary has had an active and far-reaching program for 1949-1950. Probably the most worth-while project was the series of weekly broadcasts for children entitled "Healthy Living in Our County." Thirty-two schools cooperated on this weekly radio broadcast on health and hygiene, which was planned and executed under the leadership of Mrs. Paul Brindley. Since the auxiliary did not have enough money for the necessary printing or mimeographing, the auxiliary committee mimeographed and bound 378 books of 35 pages each for the elementary teachers. The program has cost $125. Elementary supervisors heard a report at their state conference and recommended that it be adopted in the state schedule.

The legislative and public relations committees distributed many of the pamphlets, "The Voluntary Way Is the American Way" and "American Medicine Replies to President Truman." A joint meeting of these two committees was held to plan and discuss a more comprehensive program for the coming year.

Public relations between our auxiliary and the laymen in the community were improved by a tour of Galveston's three hospitals on January 10. About 165 women from various Galveston organizations participated in the tours conducted by auxiliary members.

Other programs were a luncheon, October 18, at which we had as guests the doctors' wives who were new in the county; in November a tea honoring our new members and the Medical Dames, women medical students; in December a Christmas party for our husbands; and in February a game day. On March 14 there will be a morning coffee with election of officers and a welcome to the State President, Mrs. Joseph B. Foster, Houston. The April meeting will be held on the mainland, and the final meeting in May will be a luncheon with installation of officers.

Eighty-two active members have paid dues and $40 has been sent to the Student Loan Fund.

MRS. DICK P. WALL, Galveston.

Grayson County

The Grayson County Auxiliary has an active membership of 40 plus 6 who are wives of dentists. During the year the auxiliary had five business and social meetings at which outside speakers gave the program. The aim of these meetings was to increase interest in the auxiliary and to acquaint the members with various phases of medicine.

Our first meeting in October was a luncheon, and our guest speaker was Dr. W. J. Southerland, president of the Grayson County Medical Society. He stressed auxiliary support and showed a film on preventive medicine.

In November, Lt. Col. Anthony Czerwinski, commanding officer of the Medical Corps at Perrin Field, spoke on "Magic of Blood."

A dinner party honoring Grayson County doctors was held in December. Dr. Gordon Maddox, Denton, performed magic tricks interspersed with remarks against socialized medicine. Thirty-seven doctors and their wives enjoyed this entertainment.

At a January luncheon a discussion on child welfare in Grayson County was led by Miss Frances Lewis, State Child Welfare Director.

The February luncheon was in honor of dentists' wives, and an address was given by Mrs. J. Rankin Hardy, president-elect of the State Dental Auxiliary.

March brought Mrs. Joseph B. Foster, Houston, President of the State Auxiliary. On March 23 the public relations committee presented two lectures simultaneously in Denison and Sherman, both on psychiatry.

Every meeting of the auxiliary has been recorded in both the Sherman *Democrat* and the Denison *Herald*, and other articles of interest to the auxiliary have been printed.

The program of physical examinations has been adhered to throughout the year with a total of 105 reported.

A check for $10 from the auxiliary was sent to the Memorial Fund in memory of Dr. J. H. Carraway, Sherman, and Dr. G. G. Greer, Whitesboro, who died during the year. The auxiliary donated a total of $20 to the Red Cross Fund, the Student Loan Fund, the American Hospital Association, and the Library Fund.

The philanthropic project of greatest import to our auxiliary to date is the Nurses' Loan Fund which we have set up this year for the first time. Under the terms of this fund two worthy girls who are high school graduates may borrow $200 each at 2 per cent interest for five years, to be applied to the course of nurses's training.

MRS. JOHN D. GLECKLER, Denison.

Gregg County

Gregg County Auxiliary had seven luncheon meetings and six committee meetings.

In December our auxiliary created a Student Loan Fund for training Gregg County girls in nursing, medicine, and the associated technical phases of medicine. We have received favorable newspaper publicity on this project. We hope to have funds available by the end of next year in the event that we have a call for it.

The high point of our year was reached October 25, when we were hosts to the Fifteenth District. The morning session was followed by a luncheon with our husbands. In the afternoon we honored our State President, Mrs. Joseph B. Foster, Houston, and the Fifteenth District with a seated tea. During the afternoon Mrs. Foster and also the State President-Elect, Mrs. William M. Gambrell, Austin, brought inspiring messages.

We have sent in state and national dues for 36 members. We have 1 honorary member and 3 members-at-large in Gilmer.

MRS. J. T. MCREE, Longview.

Harris County

The Harris County Auxiliary has a paid membership of 512, including 70 new members, 7 associate members, and 4 honorary members.

The theme for the year has been "Individual Responsibility" and an effort has been made to turn the auxiliary toward a more active participation in legislative activities and health projects.

The nine executive board meetings this year have preceded the general meetings by two weeks. Following each

board meeting a newsletter is mailed to all members, announcing the next general meeting, relating the work of each committee, and giving pertinent news on legislation. Eight general meetings have been held, including a tea and health program open to the public. The March meeting will honor Mrs. Joseph B. Foster, State Auxiliary President and member of our auxiliary.

There are 31 committees in our auxiliary that have led in the accomplishment of many tasks of value to our community and auxiliary.

The publicity chairman has been responsible for 40 notices and 18 pictures in the local papers, clippings of which have been sent to the State Historian.

The health education, program, and public relations committees jointly sponsored our open meeting, which was directed to health education in the schools and attracted 300 persons. Four programs of health talks on the "listening lesson" series were broadcast to children in the public schools with the cooperation of the auxiliary. The auxiliary also cooperated in the Houston-Harris County Woman's Campaign designed to abolish possible sources of poliomyelitis and other infections.

In addition to the expenditure of approximately $2,000 for philanthropic work, more than 850 hours have been devoted by our members to the wrapping of bandages for the M. D. Anderson Hospital for Cancer Research, as well as many hours in various civic campaigns.

The nurse recruitment committee has visited numerous high schools in a campaign to encourage girls to enter the field of nursing; scholarships have been given to two student nurses now training at Hermann Hospital.

The newest of our committees is devoted to work at the Harris County Cerebral Palsy Treatment Center.

Talks on legislation have been given at every executive board and general meeting. We have given aid to the committee on legislation and public relations of the Harris County Medical Society in furthering its program, and have assisted in the A.M.A. educational program by securing from many clubs resolutions against compulsory health insurance.

In November we entertain the Woman's Auxiliary to the South Texas District, the State President, and the President-Elect during the meeting of the South Texas District Medical Society in Houston.

Physical examinations of doctors and their families numbered 1,574. Physical examination of servants numbered 283. This auxiliary has contributed to all state funds, Library, Memorial, and Student Loan.

In February was held the first meeting of the newly organized chapter of East Harris County, which is composed of wives of members of the Harris County Medical Society living in and near Baytown.

MRS. JOHN KING GLEN, Houston.

Harrison County

The Harrison County Auxiliary meets in the homes of members for a luncheon on the first Tuesday of the month. After luncheon we have a business meeting. Mrs. Joseph B. Foster, Houston, President of the State Auxiliary, was present for the January meeting.

Our public relations chairman has provided programs which were broadcast over the local radio station for several weeks. We have contributed to the Red Cross, Community Chest, and Empty Stocking Fund. Several meetings were devoted to discussion on pending legislation related to socialized medicine. Our spring plans include sewing at the local hospital.

MRS. C. H. HEIDELBERG, Marshall.

Hidalgo-Starr Counties

The Hidalgo-Starr Counties Auxiliary meets the second Thursday in each month from September through May. The meeting is preceded by dinner with the medical society.

The auxiliary has added 2 new members to its roster, making a total of 44 members.

Our program has consisted of 2 social meetings, 7 business and social meetings, and 1 executive board meeting. The two strictly social meetings were given in honor of the doctors. One was a barbecue in November and the other a dinner in April. In June a luncheon was held for the officers and committee chairmen at which time the year's work was planned. For the first time we compiled and had printed a yearbook for the auxiliary, outlining the year's program and giving a list of the national, state, and local officers, a history of our local organization, and a list of the members. In February the society entertained Mrs. Joseph B. Foster, Houston, the State Auxiliary President, with a brunch.

One personal call has been made to our Congressman and two communications concerning socialized medicine were sent to him.

This auxiliary also has endorsed the work of the Hidalgo County Crippled Children's Society and given it our support and individual interest.

MRS. H. DEANE MUNAL, San Juan.

Hopkins-Franklin Counties

The Hopkins-Franklin Counties Auxiliary has had five regular meetings in 1949-1950. They have been both business and social with a guest speaker each meeting. We have 22 active members and 5 dentists' wives as associate members.

There have been no new subscriptions to *Hygeia* but we have had one new subscription to the *Bulletin*.

The auxiliary contributed 50 cents per member and associate member to the Library Fund.

The goal of our auxiliary this past year was to acquaint our community with the facts about compulsory health insurance. Several talks were made before civic and study clubs.

MRS. T. H. MCCONNELL, Sulphur Springs.

Hunt-Rockwall-Rains Counties

There are 32 regular and 13 associate members in Hunt-Rockwall-Rains Counties Auxiliary. We have had eight regular meetings with good attendance. Our June meeting will be a picnic for the medical society. Each meeting has been reported to the local press and to the TEXAS STATE JOURNAL OF MEDICINE.

In October we enjoyed a dinner with the medical society and later held our first business meeting of the year. A report on the Tuberculosis Association was given and the film "They Do Come Back" was shown. In November a short play on public relations was presented by members of the auxiliary. "A Slight Case of Obstetrics" was enacted at our formal banquet given for the medical society in December. In January, the school nurse reported on the health plans for the schools in Greenville. Election of officers was held in February. We plan to have outside speakers for the March and April meetings, which will be Music and Bible Day respectively. Installation of officers will be in May.

We have sponsored one student nurse this year and five others have been contacted. Members have assisted in the work of all civic drives. We have promoted the sale of *Hygeia* and the *Bulletin* as much as possible.

MRS. F. S. CARRUTHERS, Greenville.

Jasper-Newton Counties

The Jasper-Newton Counties Auxiliary was reorganized April 17, in Jasper. Mrs. J. H. Wade, Lufkin, Council

Woman for the Tenth District, assisted in the reorganization. The following officers were elected: president, Mrs. J. W. McCall, Jasper; vice-president, Mrs. Tom R. Jones, Pineland; secretary-treasurer, Mrs. Joe W. Dickerson, Jasper; parliamentarian, Mrs. W. S. McCreight, Kirbyville; public relations officer, Mrs. J. J. McGrath, Jasper. Seven members have paid their dues, leaving nine who have not paid but who are interested in the auxiliary.

As we were late in the year organizing, our Doctor's Day will be on May 17, with a dinner followed by a program of music and games.

MRS. JOE W. DICKERSON, Jasper.

Jefferson County

The Jefferson County Auxiliary divided itself this year into two chapters, the South County with headquarters in Port Arthur, and the North County headed by the Beaumont unit. The chapter officers will alternate years as the official county officers; the Beaumont group is serving this year.

The Beaumont group had four guest speakers including Mrs. G. V. Brindley, Temple, wife of the President of the State Medical Association, who spoke on "The Doctor's Mouthpiece" or "Ethics for the Doctor's Wife." Mrs. Rex Fortenberry, a lawyer from Beaumont, talked to both chapters on "Socialized Medicine and Prepaid Voluntary Care." Representative guests from many civic organizations were invited to this meeting.

In December we entertained Mrs. Joseph B. Foster, Houston, State President of the Woman's Auxiliary, for luncheon and tea. The members of the auxiliaries in the surrounding counties were also invited.

Under the sponsorship of the Jefferson County Medical Society, the auxiliary designed, set up, and operated a booth at the South Texas State Fair in October. Thousands of pieces of literature opposing compulsory health insurance were distributed and letters to Congressmen and Senators were written and mailed from this booth. Thirty women worked ten days on this project. The Negro doctors' wives served on the day set aside for their race.

Continuing a project started last year, the Jefferson County Auxiliary has collected sample drugs and supplies, valued at approximately $3,000, from doctors' offices and presented them to local charity institutions which depend almost entirely on this source for their medicines.

We have furnished worker teams for the Tuberculosis Bangle Sale, March of Dimes, Cancer Fund Drive, Crippled Children Fund Drive, and the American Heart Association Fund Drive.

The Port Arthur chapter has secured films on health and safety from the State Medical Association Film Library in Austin for showing to school children.

Our legislative chairman has been diligent in reporting the contents of Marjorie Shearon's "Political Medicine" to the members and in taking advantage of every opportunity to advance the fight against compulsory health insurance.

The Jefferson County Auxiliary presented 20 gift subscriptions to *Hygeia* to schools in the county and secured 80 additional subscriptions.

We have 116 paid memberships, 17 honorary members, and 2 members-at-large.

MRS. F. PEEL ALLISON, Beaumont.

Kerr-Kendall-Gillespie-Bandera Counties

The Kerr-Kendall-Gillespie-Bandera Counties Auxiliary has 43 members, including 7 new members. We will have had nine meetings, two including the doctors, and an executive board meeting.

We have tried to carry out "Individual Responsibility," the theme of our State President, and have endeavored to arouse public protest against socialized medicine by arranging for speakers at women's meetings at eight of our churches, and also at the elementary and senior P.T.A. meetings. We have arranged for literature to be distributed at these meetings and for resolutions to be considered.

Dr. and Mrs. Sam E. Thompson have secured the cooperation of the local press in combating socialized medicine. We have had one splendid radio talk by Mr. Virgil Parsons and more talks will be given.

Mrs. Pete Allison, public relations chairman, assisted by auxiliary members and Mrs. William Franke, the school nurse, launched a series of eight weekly broadcasts of "Healthy Living in Our County" from our Tivy School Auditorium. The programs have been so successful that the school authorities are enthusiastic about a full year of weekly broadcasts in 1950.

Our auxiliary sponsors the sale of the Tuberculosis Seals in Kerr County every December, and this year $1,600 was turned in from the Seal Sale. With the assistance of the P.T.A. groups, the auxiliary has given 1,180 patch tests to all new school children in the county and rechecked the senior and junior high school groups in Kerrville. We have paid for approximately 35 x-rays this year, and have given $75 for lunches for underprivileged children.

Sixty-two subscriptions have been secured for *Today's Health* and six gift subscriptions have been made to schools. Contributions have been made to the Library Fund, and the Milk Fund in the Fredericksburg school. We have contributed materials for handwork to the patients at the Kerrville State Sanatorium; information on nursing has been supplied to a group of high school girls.

We were honored by a visit from Mrs. Joseph B. Foster, Houston, State Auxiliary President, in October.

Our programs included talks on heart disease, psychiatry and medicine, Kerrville's Cancer Clinic, child adoption, and hobbies, and a review of the book, "Crisis in Education."

The officers of the Bexar County Auxiliary and their husbands will be guests at our Doctor's Day supper party in June.

MRS. EDWARD L. DYER, Kerrville.

Lamb-Bailey-Hockley-Cochran Counties

The Lamb-Bailey-Hockley-Cochran Counties Auxiliary met for the first time February 17, with Mrs. Allen T. Stewart, council woman for the Third District, helping with the organization. Fourteen members were present.

Mrs. G. V. Edgar, Levelland, was elected president and Mrs. O. W. Still, Littlefield, was elected secretary.

The auxiliary will meet on the third Friday of each month.

MRS. G. V. EDGAR, Levelland.

Lampasas-Burnet-Llano Counties

The Lampasas-Burnet-Llano Auxiliary does not hold regular meetings. An annual business meeting is usually held in April.

Approximately thirteen members pay dues to the Woman's Auxiliary to the State Medical Association. Four dentists' wives pay local dues.

Small contributions are made to the Memorial and Student Loan Funds.

All members contribute or participate actively in their respective communities in some of the following organizations: Red Cross, Christmas Seals Campaign, Cancer Control, March of Dimes, Boy and Girl Scouts, P.T.A., General Federation of Women's Clubs, and church organizations.

MRS. H. J. HOERSTER, Llano.

La Salle-Frio-Dimmit Counties

The wives of the physicians from the La Salle-Frio-Dim-

mit Counties Medical Society met in Carrizo Springs, November 15, and organized an auxiliary. We met again in Dilley on March 21. Mrs. M. A. Ramsdell, president; Mrs. C. I. McGehee, president-elect; and Mrs. F. W. Sorell, past president of the Bexar County Auxiliary, led encouraging and informative discussions. Future meetings will be held quarterly to conform with the meeting date of the medical society.

Our goal for next year is the enrollment of all eligible women in the tri-county area; also, the distribution of information passed on to the auxiliary on the current legislative program.

Officers of the auxiliary are president, Mrs. Clyde P. Myers, Cotulla; vice-president, Mrs. Glen Howard, Pearsall; secretary-treasurer, Mrs. C. E. Pinkney, Dilley. Other members are Mesdames Albert Johnson, John Crawford, W. S. Wilson, B. E. Pickett, and Raymond Mundt, all of Carrizo Springs.

MRS. CLYDE P. MYERS, Cotulla.

Liberty-Chambers Counties

The Liberty-Chambers Counties Auxiliary has 12 active members and 3 honorary members. Our meetings are held in Liberty on the second Thursday of each month.

Our program for the year follows closely that suggested by the State and National Auxiliaries. Programs have included the following topics: parliamentary law, Truman's compulsory health plan, Oscar R. Ewing's "The Nation's Health," and voluntary prepayment hospital plans.

Our State President's luncheon for Mrs. Joseph B. Foster, Houston, was in November. The auxiliary will entertain the doctors with a dinner in May.

Subscriptions to *Hygeia* and the *Bulletin* have been stressed and we are 100 per cent on the *Bulletin*.

We have made donations to three benevolent funds, purchased Gold Seal tuberculosis bonds, and have taken charge of the March of Dimes Drive in Liberty County. We hope to establish a nursing scholarship by fall.

Our auxiliary distributed several thousand leaflets, "Government Health Insurance versus Health, The American Way." Our medical auxiliary tea is in April, at which time we will have a speaker on compulsory health insurance.

MRS. DON P. SCHULZ, Liberty.

Lubbock-Crosby Counties

The Lubbock-Crosby Counties Auxiliary has completed a successful year. Ten meetings were held at monthly intervals excluding July and August.

The auxiliary was hostess to the Third District Auxiliary in October. Approximately 20 guests attended the luncheon and 40 members of the Lubbock-Crosby Counties Auxiliary were present. Mrs. William M. Gambrell, Austin, President-Elect of the State Auxiliary, was guest speaker. Mrs. G. V. Brindley, Temple, also spoke.

Lubbock-Crosby Counties Auxiliary has 56 paid members who serve in various capacities to further public health and hygiene. They serve in the Red Cross Blood Bank which is a project of the county auxiliary and has been in operation for two years. Fifteen members of the medical auxiliary have donated a total of 60 hours' service per month to the Cerebral Palsy Clinic. Members have also donated time to the Well Baby Clinic and the Tuberculosis Seal Campaign.

MRS. IVAN MAYFIELD, Lubbock.

McLennan County

It is the purpose of our organization to bring into closer fellowship the families of the physicians comprising the McLennan County Medical Society and to engage in any benevolent, charitable, philanthropic, or patriotic work upon which that body may decide.

In September, the auxiliary presented a program on health education. Our auxiliary has a representative on the board of the Council for Social Welfare. From that organization we obtained a speaker on the health needs of our city. Following that address, a registered nurse spoke on student nurse recruitment. Literature on the recruitment of nurses was available.

Our October program was on legislation with a speaker who explained the ten proposed amendments to the Texas Constitution.

In December, the auxiliary held a brief business meeting, a Christmas program, and social hour.

On January 10, Waco was host to the Twelfth District Auxiliary. A brief business meeting was followed by a travel talk on Hawaii.

At our regular January meeting the legislative chairman explained social and health measures to be brought before the U. S. Senate and House of Representatives.

The February meeting was a business meeting followed by a talk on landscape-gardening by a guest speaker.

Our public relations day was March 22, at which time Dr. Tom Oliver spoke on "Improved Public Relations in Medicine."

The auxiliary had a business and medical program in April with Dr. Ruth M. Hubbard speaking on "The Psychologist's Contribution to the Understanding of Emotional Problems."

Donations totaling $55 have been made by this auxiliary to the Waco Community Chest, Red Cross, Y.W.C.A., Student Loan Fund, Memorial Fund, and Library Fund.

Our yearbook roll contained the names of 108 wives of McLennan County Medical Society members. Of that number, 75 paid membership dues.

MRS. HOWARD R. DUDGEON, JR., Waco.

Medina-Uvalde-Maverick-Val Verde-Edwards-Real-Kinney-Terrell-Zavala Counties

The idea of organizing a medical auxiliary to the Medina-Uvalde-Maverick-Val Verde-Edwards-Real-Kinney-Terrell-Zavala Counties Medical Society was first conceived several years ago by Dr. William E. Bell, Kerrville, and Mrs. Bell, Fifth District council woman, and Dr. Cary Poindexter, Crystal City, councilor for the Fifth District. Mrs. Dean P. Dimmitt, Uvalde, also assisted in this organization.

After many months of work, Mrs. Dimmitt finally brought about a successful meeting in Del Rio in September, 1949. With the excellent suggestions and enthusiasm offered by Mrs. B. H. Passmore, San Antonio, the new chapter emerged with Mrs. Dimmitt as temporary chairman.

Plans were made for formal organization and election of officers at the next meeting to be held in Crystal City in December. On December 9 the group met again with Mesdames H. O. Wyneken and E. W. Coyle from the Bexar County Medical Auxiliary to assist in the organization.

The meeting opened with a discussion of a constitution and by-laws, which were put into shape to be voted on. The Bexar County yearbook was used as a guide, and Mrs. Coyle assisted in the revision to suit the needs of our group. The following officers were elected: president, Mrs. D. P. Dimmitt, Uvalde; first vice-president, Mrs. R. A. Eads, Uvalde; second vice-president, Mrs. J. D. Williamson, Castroville; third vice-president, Mrs. Cary Poindexter, Crystal City; secretary, Mrs. O. A. Fly, Jr., Uvalde; treasurer, Mrs. Norville Graham, Del Rio; and parliamentarian, Mrs. Glee Utterback, Brackettville. Dr. D. P. Dimmitt was appointed counselor for the auxiliary by Dr. J. W. Williamson, president of the medical society.

Annual dues of $4 were voted. After all organizational problems were settled, the group had a general discussion on problems of the medical profession and how the auxiliary can assist. Literature was distributed to those present, and mailed to all prospective members. Plans were made for the next meeting in March, 1950.

At the conclusion of the meeting at Eagle Pass on March 10, there were 20 paid memberships, 19 active and 1 associate.

It was agreed that the auxiliary would meet four times a year in March, June, September, and December in conjunction with the medical society meeting and that there would be a business meeting, program, and social hour at each.

The major project of the chapter this year will be emphasis on nurse recruitment. This project is to be carried out by local radio programs, lectures, and movies in the schools, and through pamphlet distribution.

MRS. O. A. FLY, JR., Uvalde.

Nacogdoches County

Regular monthly meetings have been held each second Wednesday except during June, July, and August.

Our third annual silver tea was given November 16. The proceeds from the tea are to be used in furnishing some part of the new addition to the City Memorial Hospital which is to be built soon.

We contributed to the Junior Chamber of Commerce Christmas program.

Dr. Henry Tucker, president of the Nacogdoches County Medical Society, spoke at our January meeting about the F.B.I. investigation of the A.M.A. and its associated organizations.

At the January meeting Mrs. Walter B. Allen was elected president; Mrs. T. J. Pennington, vice-president; and Mrs. J. Frank Beall, secretary-treasurer. These officers will assume their duties in September.

All meetings have been reported in the local paper.

MRS. JAMES G. TAYLOR, JR., Nacogdoches.

Nueces County

The Nueces County Auxiliary began the year with the annual Fifth and Sixth Districts medical meeting in Corpus Christi on July 8 and 9. The auxiliary helped with registration of both doctors and wives and planned entertainment for the wives. Mrs. William M. Gambrell, Austin, President-Elect of the Woman's Auxiliary to the State Medical Association, was guest speaker at a luncheon, and visiting auxiliary members were honored at a coffee.

The auxiliary had eight meetings this year. The first honored 15 new members, and Mrs. James Sharp stressed the importance of familiarizing ourselves with material on compulsory health insurance sent to us through the year. As State Bulletin Chairman and local Bulletin and Hygeia chairman, Mrs. Sharp asked for support by subscriptions to these publications.

In February we invited 250 women to a guest-day luncheon, and Dr. Oliver Harrison, pastor of the First Christian Church, spoke on "Current Threats to Our Democracy."

We placed *Hygeia* in all the schools, hospitals and charity clinics. We reported 327 physical examinations, 108 subscriptions to *Hygeia,* and 66 subscriptions to the *Bulletin.* We subscribed to the Library Fund, the Student Loan Fund, and the Memorial Fund. We collected vitamin samples from our husbands' offices and placed them in pre-natal charity clinics.

Our two strictly social meetings were the Christmas open house and the June barbecue. Our doctors attended these functions.

The executive board has voted to recommend to the auxiliary two changes in constitution: (1) to move election and installation of officers up to begin our new year March 1 so that the year will be complete and all reports in by the February meeting; (2) to elect a president-elect as well as all present officers. These amendments will be voted on at the March meeting.

MRS. L. W. O. JANSSEN, Corpus Christi.

Palo Pinto-Parker Counties

The Palo Pinto-Parker Counties Auxiliary held four combination business and social meetings during the current year and attended two meetings of the Tarrant County Auxiliary in Fort Worth.

The program adopted by the auxiliary was a study of prepaid medical care. Mrs. A. B. Pumphrey, Fort Worth, chairman of the State Auxiliary Legislative Committee, spoke on prepaid medical care at the February meeting. In April, Mrs. H. A. Zappee will review the book "The Road Ahead" by John T. Flynn.

There were 25 physical examinations in doctors' families.

The auxiliary was host to the Thirteenth District Medical Auxiliary meeting held in Mineral Wells in November.

Palo Pinto-Parker Counties Auxiliary has 10 members and 1 associate member.

MRS. R. C. JORDAN, Mineral Wells.

Potter County

The Potter County Auxiliary had eight luncheon-meetings during the year with approximately forty members present each time. Two strictly social meetings were held, one honoring our husbands with a buffet supper. During the year we have had two guest speakers who discussed aspects of socialism here and in foreign countries. At each meeting our public relations chairman has given an extensive report. The auxiliary has sponsored one talk on nursing as a career to the junior and senior girls in Amarillo High School.

Individual members of the auxiliary have given 120 hours to cancer control, the Red Cross, and tuberculosis volunteer work, which was mainly office clerical work, solicitations during campaigns, and signing persons for free screening.

The Potter County Auxiliary is endeavoring to gear its activities into local campaign patterns and to carry to the public the truth about compulsory health insurance.

MRS. MERRILL WINSETT, Amarillo.

Rusk-Panola Counties

The Rusk-Panola Counties Auxiliary is still in its infancy, but it is hoped that this second year will result in progress and better informed members. The auxiliary now has 26 members, an increase of 4 over last year. The nine meetings each year are dinner meetings with the doctors. After the guest speaker, the auxiliary and society hold separate business meetings.

The meetings scheduled for this year include a discussion on the history of the auxiliary in September; election of officers in January; Doctor's Day dinner with entertainers from Lon Morris College, Jacksonville, in February; nursing problems in the local hospital in March; compulsory health insurance in April; and a social meeting with the doctors in May. We also planned a tea March 22 in honor of our State Auxiliary President, Mrs. Joseph B. Foster, Houston.

Our auxiliary has furnished workers for the tuberculosis drive and the cancer drive in Panola County. We have made efforts to interest high school girls in nurses' training and have recruited one for nurses' aid work in the summer. We have discussed current legislation concerning socialized medi-

cine and stressed the importance of writing to our Congressmen about pending bills.

MRS. J. C. ALLEN, Henderson.

Smith County

The Smith County Auxiliary had eight meetings during the year, all of which were well attended with an average of thirty-five or more at each.

The October meeting was a business meeting and reassembly coffee. In November the Gilmer-Aikin educational plan was discussed by Mr. Ben Johnson, a local attorney. In December Dr. H. W. Poetter had as his subject the East Texas Tuberculosis Hospital. At our January meeting, one of our members, Mrs. W. Howard Bryant, discussed "Modern Woman." On February 1 the auxiliary entertained with a coffee; the guest speaker was Dr. Carter Anderson, whose subject was socialized medicine. On March 1, Mrs. Thomas Jarmon will present the history of the local auxiliary. A dinner honoring the doctors will be given in April. In May we shall have a discussion on the water supply for the city of Tyler.

During the year we welcomed 5 new members which brings our membership up to a total of 42. Forty-seven subscriptions to *Hygeia* and 9 to the *Bulletin* were received. A total of 420 reports were sent to the Sate Historian. Our publicity chairman sent 8 reports to the TEXAS STATE JOURNAL OF MEDICINE and 8 to the local paper.

Contributions of $5 each were made to the Student Loan Fund, Red Cross, and Memorial Fund; $3 to the Library Fund; and $20 to the East Texas Tuberculosis Hospital.

MRS. GLYNNE BROWN, Tyler.

Tarrant County

The aim of the Tarrant County Auxiliary this year has been "to develop an individual consciousness of our responsibility to the medical profession." We have held eight meetings, one on public health with a doctor speaking on "Our Health," emphasizing the importance of weight control. We had our State President, Mrs. Joseph B. Foster, Houston, with us in November and honored her at a luncheon. A program on current legislation was held in January with Mr. Philip R. Overton and Mr. W. E. Syers, both of Austin, as speakers. The public relations committee sponsored our April meeting when we had as guests the presidents of all the federated and professional women's clubs in Fort Worth. The speaker was a prominent lawyer who spoke on "The Doctor and His Community."

The public relations, the legislative, and the speakers committees joined forces to bring before the public information on the pending bills on health. Several study groups were held and talks were made before one hundred organizations in the city. Through the efforts of this committee several hundred letters were written and mailed to our Congressman. Copies of the current bills were typed and distributed along with hundreds of pieces of literature. A speakers' bureau of about 15 women (not doctors' wives) was organized. They will speak on this legislation anywhere they are asked or needed.

There were 590 physical examinations reported in the doctors' families.

About 60 of our members gave many hours of work during the flood disaster last May. Our public health committee managed this project and a great deal of food and clothing was gathered and distributed. This committee also helped in the National Heart Campaign by placing 600 heart containers in business establishments all over town.

Our historian has compiled a history of the Tarrant County Auxiliary from its beginning. Every yearbook is included along with interesting information about each year's work.

A "roaring '20's" dinner and dance was held in February in honor of our husbands. A barbecue picnic will also be held in June for doctors and wives.

We have 242 members, with 20 new members to be added, 4 associate members, 3 honorary members and 4 members-at-large.

MRS. HOBART O. DEATON, Fort Worth.

Taylor-Jones Counties

The Taylor-Jones Counties Auxiliary consists of 53 members, 1 associate member, and 1 honorary member. Our theme for the year has been "Friendship and Individual Service."

Meetings have been held monthly and the attendance has been excellent. Since many new members have come into our auxiliary this year, they were guests of honor at the first meeting in October.

In November we entertained the State President, Mrs. Joseph B. Foster, Houston.

Public relations have been stressed throughout the year, and the chairman of that committee gave a talk at the January meeting. Eleven members subscribed to *Hygeia;* 9 subscribed to the *Bulletin.*

Health education has been emphasized in several ways. There were 102 physical examinations. Health talks were made by the doctors before P.T.A. groups. In March, our health chairman to the City Federation presented Mr. Philip Overton, Austin, and Dr. R. G. Baker, Fort Worth, who spoke to that body in a well-attended open meeting.

The radio program, "Healthy Living in Our County," sponsored by the Merkel School was given over KRBC.

The legislative chairman has kept members informed on all medical legislation. At the February meeting, cards were written to our Congressmen concerning pending legislation.

Our auxiliary, has made contributions of $5 each to the Red Cross, Memorial Fund, Library Fund, Tuberculosis Christmas Seals, March of Dimes, Student Loan Fund, and the Sunshine Nursery. Individual service is given liberally in many other philanthropies and civic projects.

The Doctor's Day celebrations included an informal picnic and a square dance last July and in December a dinner-dance which 220 doctors and their wives attended.

Our special project for the year has been recreation for the student nurses at Hendrick Memorial Hospital.

The publicity secretary has sent 3 reports to the TEXAS STATE JOURNAL OF MEDICINE, 5 to the Historian, and 18 notices to the local paper.

MRS. HUBERT SEALE, Abilene.

Titus County

The Titus County Auxiliary has not been active this year. A called meeting was held in October. Three members paid dues.

Mrs. W. A. Taylor, chairman of the Today's Health committee, reported 16 subscriptions to the magazine.

All material from state and national headquarters has been distributed.

We are looking forward to an active year in 1950-1951 since more members will then be enlisted.

MRS. WILLIAM A. TAYLOR, Mount Pleasant.

Tom Green-Eight County

The main objectives of the program of the Tom Green-Eight County Auxiliary are to promote friendship among doctors and their families and to extend the aims of the medical profession to other organizations. Particular stress was placed on the present medical care which the public re-

ceives in comparison with what the public could expect if medicine became socialized.

The auxiliary was active in lending aid to the Fourth District medical meeting, which was held in San Angelo this year. A luncheon was held for wives of doctors attending the meeting, and a banquet was given that evening with Dr. G. V. Brindley, President, State Medical Association, and Congressman O. C. Fisher as speakers.

We have had an excellent attendance at all meetings, and have a total membership of 45.

Our main project this year was assisting the Child Welfare Unit. This included making personal hygiene kits for children entering foster homes. Christmas packages were made up for 66 children already in foster homes and/or listed by the Tom Green Welfare Board.

Doctors' wives are actively participating in various health organizations in our city. The local Infantile Paralysis Committee invited the medical auxiliary to furnish personnel to aid in its campaign. For our efforts we were rewarded with a certificate of merit by the Polio Foundation.

MRS. GORDON F. MADDING, San Angelo.

Travis County

The Travis County Auxiliary began the year with a luncheon honoring the State President, Mrs. Joseph B. Foster, Houston, who spoke on the responsibility of each member in the crusade against compulsory health insurance. Dr. G. V. Brindley, Temple, President of the State Medical Association, was our guest speaker in November, and his address also was on compulsory health insurance.

Doctor's Day was observed by a picnic on April 29.

Our legislative chairman was in constant touch with the legal adviser to the Medical Association and followed through every suggestion made by him. Four resolutions pertaining to health legislation were sent to the President of the United States and to the Senators and Representatives.

The philanthropic committee planned the Christmas meeting and collected $36 for underprivileged children chosen from the files of the Child and Family Service. The philanthropic committee also made calls on men and women residing in homes for the aged.

The nurse recruitment committee, cooperating with the superintendent of nurses at Brackenridge Hospital, made arrangements for high school seniors to tour the hospital. Films on nursing were also shown to the graduating classes. The committee also sent letters to key auxiliary members in the surrounding towns to obtain information on how to interest their girls in nursing as a profession.

The tuberculosis sanatorium committee staffed the mobile x-ray unit for one day at the Chamber of Commerce during the Tuberculosis Drive. The committee's plans for the year also included a half day's work a week at the sanatorium for mending and sewing.

At the beginning of the year, the chairman of the community service committee sent a questionnaire to each member of the organization to determine her interests, capabilities, and willingness to work in different fields. These questionnaires created a permanent file which was used to place volunteers where they were most needed.

Our main project for the year was to help in the drive of the American Heart Association. Auxiliary members placed 150 plastic hearts in strategic places in Austin and made weekly collections of the donations. The auxiliary also furnished a section chairman in the Red Cross Drive as well as others who worked as canvassers. The members also contacted all the physicians in Austin for their donations to the Community Chest.

A survey revealed that the Travis County Auxiliary has representation in 28 community service organizations.

Contributions totaling $317 were made to several civic health campaigns and to benevolent funds of the state and local auxiliaries.

MRS. W. P. MORGAN, Austin.

Washington County

The Washington County Auxiliary is composed of 28 members: 11 active, 15 associate, and 2 members-at-large.

The first meeting of the year was a coffee at the home of the president, Mrs. C. E. Southern. All other meetings have been held at the St. Anthony Hotel on the last Monday in the month.

The theme for the year, as chosen by our State President, has been "Individual Responsibility," and the project adopted for the year was "Healthy Living in Our County." We also resolved to become better informed and to inform others concerning the bills on socialized medicine.

Five dollars was sent to each of the following: the Student Loan Fund, George Plunkett Red Fund, and the Polio Fund.

Doctor's Day was observed by an informal supper. We entertained our State Auxiliary President, Mrs. Joseph B. Foster, Houston, with a luncheon. Mrs. Foster stressed the fight that the medical profession is waging against compulsory health insurance.

Resolutions on health legislation were mailed to legislators from social groups, study clubs, church groups, and P.T.A. clubs as a result of work by the auxiliary. We have been responsible for three talks to different church, study, and social groups informing them of the bills, and cards were passed out for mailing to our legislative leaders.

"Healthy Living in Our County" is broadcast over KWHI every Thursday with wonderful response from our listening audience. Many schools have purchased radios as permanent educational equipment and have recognized the medical profession's effort to help people be and to remain healthy. The teachers have cooperated wonderfully.

Our Hygeia chairman set a record by doubling the subscriptions over last year. Subscriptions were placed in the High School, Central School, Alamo School, the Negro school, and the Public Library.

One of our members, a Red Cross nurse, is giving instruction in first aid to the Girl Scouts and high school classes.

The last meeting of the year will be a picnic supper with our husbands as guests. The entertainment committee is composed of the four new members who came into the auxiliary in January.

MRS. W. F. HASSKARL, JR., Brenham.

Wichita County

The Wichita County Auxiliary is more social than civic.

Our auxiliary has as its special project the indigent tuberculous patients at the county farm. We have regular monthly visits with them and reply to and fulfill their requests so far as possible.

Our members are active in Red Cross work, as workers with the Blood Bank, and as Canteen and Home Service workers at Sheppard Air Force Base.

As a new activity for our auxiliary this year, our members placed in stores and collected from approximately ninety plastic hearts in the American Heart Association's campaign during February.

Our programs for the year have included a health talk by a physician, lectures and discussions on socialized medicine, a visit from our State Auxiliary President, Mrs. Joseph B. Foster, Houston, and at each meeting, pertinent remarks on current civic and legislative medical problems.

MRS. W. K. RUNDELL, Wichita Falls.

AUXILIARY NEWS

Bexar County Auxiliary

Mrs. Charles McGehee, president of Bexar County Auxiliary, entertained her new executive board with a luncheon in San Antonio on May 27. Prior to the luncheon the board made plans for the coming year.

In May the auxiliary donated an oxygen tent to the pediatrics ward at Robert B. Green Memorial Hospital and made a donation to the Gonzales Warm Springs Foundation in memory of the late Dr. Walter Stuck of San Antonio.—Mrs. Brad Oxford, publicity secretary.

Brazoria County Auxiliary

The Brazoria County Auxiliary met in West Columbia on June 29 as dinner guests of the medical society. After dinner the auxiliary held a business meeting at which Mrs. Clara Carlton presided. Mrs. Carlton announced that a nurse recruit sponsored by the auxiliary has completed her training at a Houston hospital and that another is entering a Galveston hospital in September.

A beach party was given by the auxiliary at Surfside Beach on July 13. Work for the ensuing year was planned and special attention given to ways and means of enlisting new members and increasing attendance at monthly meetings.—Mrs. W. D. Nicholson, Corresponding Secretary.

Brazos-Robertson Counties Auxiliary

The Woman's Auxiliary to the Brazos-Robertson Counties Medical Society held a luncheon meeting in Bryan on May 18. Mrs. S. C. Richardson reported on the annual session of the State Medical Association and the concurrent Auxiliary meeting. The auxiliary decided to hold no more meetings until September.

Members of the medical society were guests of the auxiliary at a picnic June 10 at the Camp Creek lodge of Dr. and Mrs. R. Henry Harrison.

Kerr-Kendall-Gillespie-Bandera Counties Auxiliary

Members of Kerr-Kendall-Gillespie-Bandera Counties Medical Society were guests of the Auxiliary at a buffet supper given June 4 at the home of Dr. and Mrs. Lester Keyser, Fredericksburg. Among the out-of-town guests were Dr. and Mrs. William M. Gambrell, Austin, presidents of the State Medical Association and the State Auxiliary respectively, and their son Dr. William M. Gambrell, Jr.

DEATHS

J. R. COEN

Dr. James Randolph Coen, Littlefield, Texas, died June 14, 1950, of acute myocardial infarction.

The son of John W. and Martha Ellen (Hage) Coen, Dr. Coen was born December 6, 1896, in St. John, Kan.,

DR. J. R. COEN

where he received his early education. He attended Kansas University, Lawrence, Kan., and was graduated from the University of Oklahoma, receiving his bachelor of science degree at Norman in 1925 and his doctor of medicine degree at Oklahoma City in 1927. After serving an internship at St. Paul's Hospital, Dallas, Dr. Coen moved to Littlefield, where he had been in general practice until the day of his death. He helped establish the Littlefield Hospital and Clinic and was a partner in that institution.

Dr. Coen was a member of the Lamb-Bailey-Hockley-Cochran Counties Medical Society, State Medical Association, and American Medical Association. He was a member of Phi Chi medical fraternity, Veterans of Foreign Wars, American Legion, and Chamber of Commerce and was president of the Littlefield Country Club. He was a member ot the Baptist Church and the Masonic Order. During World War I, Dr. Coen was in military service from September, 1917, until April, 1919.

On June 2, 1928, in Dallas, Dr. Coen married Miss Bess V. DeLashaw. Survivors include Mrs. Coen; one son, Robert Coen; one daughter, Mary Jane Coen; one brother, Frank Coen, St. John, Kan.; and four sisters, Mrs. Jessie Cunningham, Bentonville, Ark., and Mrs. Ola Paxton, Mrs. Grace Radke, and Mrs. Cassie Garvin, all of St. John, Kan.

J. L. JENNINGS

Dr. James Lydell Jennings died May 17, 1950, at his home in Roxton, Texas, of uremic poisoning.

Dr. Jennings was born October 23, 1870, in Jennings, a community in Lamar County named for his family. His parents were W. P. (Jack) and Elizabeth (Watson) Jennings. He attended Grayson College, Whitewright, and was graduated in medicine from the University of Louisville School of Medicine, Louisville, Ky., in 1893. He served an internship and did graduate work in New Orleans, then practiced in High before moving in 1902 to Roxton, where he was in general practice the remainder of his life.

He was a charter member of Lamar County Medical Society and a past president. He was also a member of the State Medical Association, which elected him to honorary

An obituary ordinarily will not be published more than four months after date of death. Cooperation in reporting deaths of physicians and in furnishing appropriate biographical material promptly is solicited.

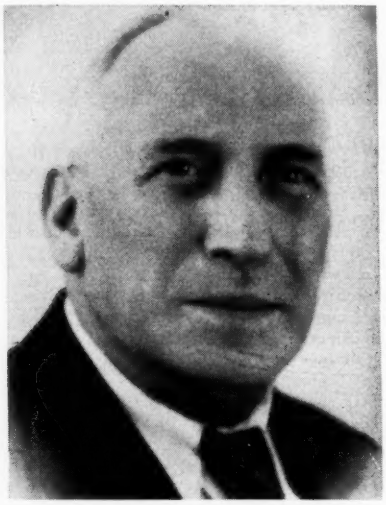
membership in 1949, the American Medical Association, and Southern Medical Association. Dr. Jennings was a member of the Methodist Church. In 1947, he was awarded a certificate of appreciation from the University of Louisville for his more than fifty years of service as a physician.

Dr. Jennings is survived by his wife, the former Miss May Hackleman, whom he married September 14, 1904, in Roxton. Also surviving are two daughters, Mrs. Donald B. Crawley, Port Arthur, and Miss Edith Jennings, Roxton, and one sister, Mrs. F. E. Butler, Denver.

A. E. BARRETT

Dr. Alfred Eugene Barrett, Fort Stockton, Texas, died at his home June 23, 1950, from cerebral thrombosis.

Born December 25, 1869, in New Middleton, Tenn., Dr. Barrett was the son of James A. and Emma Cornelia (Smith) Barrett. His academic education was received in the New Middleton High School and Academy, New Middleton, and he was graduated from the University of Nashville Medical Department, Nashville, on March 31, 1899. Later, he did postgraduate work at the Chicago Poly Clinic in 1910 and 1912. In 1899 Dr. Barrett began his medical career in Allen; he moved in 1900 to Yukon, Okla., where he practiced for two years. Dr. Barrett practiced from 1903 to 1905 in Hinton, Okla., and returned to Texas in 1906, remaining in Pampa until 1918. He then moved to Fort Stockton, where he remained in active practice until his death.



DR. ALFRED E. BARRETT

Dr. Barrett was a member of the American Medical Association and the State Medical Association through Gray County, Potter County, Reeves-Ward-Pecos Counties, and Pecos-Jeff Davis-Presidio-Brewster Counties medical societies successively. He was elected to honorary membership in the State Medical Association in 1948. Dr. Barrett served as the Fort Stockton health officer for five years before being appointed in January, 1947, as Pecos County health officer. He was a member of the medical staff of Memorial Hospital. A deacon of the First Baptist Church, he was a past master of the Masonic Lodge, a past patron of the Order of the Eastern Star, and a member of the Lions Club.

In Allen on April 19, 1899, Dr. Barrett married Miss Bettie Keahey. Surviving him are his wife; a son, Dr. Maurice E. Barrett, Decatur, Ala.; three daughters, Mrs. J. F. Reeves, Lubbock; Mrs. D. P. Greenwade, Monahans; and Miss Beatrice Barrett, Fort Stockton; three brothers, Elmer G. Barrett and Ernest C. Barrett, Pampa, and Charles S. Barrett, Pampa and Dallas; and four grandchildren.

R. E. GHORMLEY

Dr. Robert Edward Ghormley, Corpus Christi, Texas, died in a Galveston hospital June 18, 1950, from primary pulmonary hypertension and pulmonary thrombosis.

Born in Colmor, N. Mex., on March 26, 1921, Dr. Ghormley was the son of Dr. James and Jessie Adel (Grant) Ghormley. His father, two brothers, a sister-in-law, and a nephew, L. W. Ghormley, Oklahoma City, are doctors. Receiving his early education in Abilene High School and McMurry College, Abilene, where he was awarded a bachelor of sciente degree in 1941, Dr. Ghormley was graduated in 1949 from the University of Texas Medical Branch, Galveston. He served an internship at Memorial Hospital, Corpus Christi, and was associated with his brother, Dr. W. C. Ghormley, and sister-in-law, Dr. Mary Ghormley, in the Ghormley Clinic and Hospital, Corpus Christi. At his death he was taking a special course in anesthesia at John Sealy Hospital, Galveston. He had served for four and one-half years in the United States Air Force.

DR. ROBERT GHORMLEY

Dr. Ghormley was a member of the American Medical Association and the State Medical Association through Nueces County Medical Society. He was a member of Phi Chi medical fraternity and a member of the Church of Jesus Christ of Latter Day Saints. The family of Dr. Ghormley has requested relatives and friends wishing to make memorial gifts to send them to the Student Union Building fund of the University of Texas Medical Branch Alumni, Galveston.

Surviving Dr. Ghormley are his parents, Dr. and Mrs. J. N. Ghormley, Abilene; two brothers, Dr. W. C. Ghormley, Corpus Christi, and Dr. J. G. Ghormley, Blackwell, Okla.; and two sisters, Mrs. M. E. Blakely, Wichita Falls, and Mrs. J. H. Wood, Santa Paula, Calif.